ORDER NO. VRD9901001C3

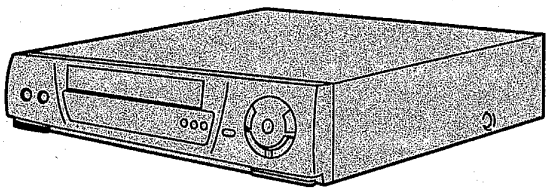
Service Manual

General Description
Adjustment Procedures
Block / Schematic Diagrams
Exploded Views / Parts List

Video Cassette Recorder

Panasonic VHS HQ PAL/NTSC

NV-SD227SA
NV-SD230$^{A}_{SA}$
NV-SD280$^{A}_{EA}$



Z-MECHANISM

SPECIFICATIONS

ITEM	SPECIFICATION	
POWER	SOURCE: 220–240 V AC 50/60 Hz	
	CONSUMPTION: 17 watts	
RECORDING SYSTEM	2 rotary heads, helical scanning system	
	PAL/NTSC	
TV TUNER SYSTEM	NV-SD227SA, SD230SA	VHF: CH4—CH13 (PAL I) UHF: CH21—CH68 (PAL I) 75Ω terminated
	NV-SD230A, SD280A	VHF: CH0—CH12 (PAL B) UHF: CH21—CH69 (PAL G) 75Ω terminated
	NV-SD280EA	VHF: CH1—CH11 (PAL B) UHF: CH21—CH69 (PAL G) 75Ω terminated
RF OUT SYSTEM	NV-SD227SA, SD230SA	UHF: CH21—CH69 (PAL I) 71±3 dBμ 75Ω terminated
	NV-SD230A, SD280A	UHF: CH28—CH69 (PAL G) 71±3 dBμ 75Ω terminated
	NV-SD280EA	VHF: CH2/3 (PAL B) 71±3 dBμ 75Ω terminated
VIDEO	HEADS: 2 rotary heads 1 pair for recording and playback	
	INPUT: VIDEO IN Connector (Phono type) 1.0 Vp-p, 75Ω terminated	
	OUTPUT: VIDEO OUT Connector (Phono type) 1.0 Vp-p, 75Ω terminated	

ITEM	SPECIFICATION
AUDIO	HEAD: 1 Stationary head (Normal-mono only)
	INPUT: AUDIO IN Connector (Phono type) −6 dBV (500 mV), more than 47 kΩ
	OUTPUT: AUDIO OUT Connector (Phono type) −6 dBV (500 mV), Less than 1 kΩ
TAPE SPEED	SP: 23.39 mm/s (PAL), 33.35 mm/s (NTSC) LP: 11.695 mm/s (PAL), 11.12 mm/s (NTSC) Record/Playback Time: SP: 4 hours with 240 min. type tape LP: 8 hours with 240 min. type tape FF/REW Time: 60 sec. with 180 min. type tape
OPERATING TEMPERATURE	5°C—40°C
OPERATING HUMIDITY	35%—80%
DIMENSIONS	430 (W)×87 (H)×297 (D) mm
WEIGHT	3.9 kg
STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. AC Mains Lead 1 pc. Infra-red Remote Controller 1 pc. AC Plug Adaptor (NV-SD230A)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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Panasonic

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

INTRODUCTION

This service manual contains technical information which will allow service personnels to understand and service this model.
Section 1 presents you with technical know how for actual servicing and general information of features and controls, enabling you to become familiar with each function.
Section 2 presents to your mechanical and electrical adjustment information as well disassembly and replacement procedures.
In the case of very common information relating to other models like mechanical adjustments, please refer to the appropriate service manual.
Section 3 contains block diagrams which provides you with information for checking and understanding each circuit. Schematic diagrams which give you detailed information such as waveforms, voltage data, function e.t.c. ...
Section 4 contains exploded views and parts list.
Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

Note 1: Adjustment procedures, Disassembly Procedures and Assembly Procedures for Mechanism Chassis are separate volume from this service manual.
Please refer to the service manual for Z-Mechanism Chassis. (Order No. VRD9802005C2)
Note 2: The Model No. is indicated on the Schematic Diagram and Circuit Board Diagrams as follows.

Model No.	NV-SD227SA	NV-SD230A	NV-SD230SA	NV-SD280A	NV-SD280EA
Indication Mark	(A)	(B)	(C)	(D)	(E)

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Service Information

VHS VIDEO PRODUCT
Model No. ALL VHS VCR

Subject : Introduction of Video Cleaning Tape (Polishing type)

- Strong weapon for Video Head cleaning -

1. Purpose

To improve the efficiency of the Video Head cleaning service and shortening cleaning time for repair technicians. It is exclusive cleaning tape removing the hard and sticky clogging on Video Heads, without removing the casing part.

2. Feature

Shortening 30% of Video Head cleaning process.
Remove the clog by short time : 10 seconds / one cleaning procedure.
(1) It is not necessary to remove the casing part.
(2) It is easy use, due to the cassette type.

3. Specifications

Part No.	VFK0923FT
Tape Length	20m / 10 minutes
Using Time / one cleaning	10 seconds
Total number of using times	180 times

Polishing Tape

Caution

* Please do not apply this Polishing Tape more than 10 seconds / one cleaning procedure.

SECTION 1
GENERAL DESCRIPTIONS

1-1. SERVICE INFORMATION

1-1-1. MICROPROCESSOR RESET AND INITIALIZATION

When replacing the Microprocessor IC6007 and/or Back-up Battery B6001, the Microprocessor IC6007 has to be reset and initialized.

Method:
1) Turn on the VCR after repalcing.
2) Connect a jumper wire between TL7509 and TL7510 for 1 second to reset the Microprocessor.
3) Press the CH UP/DOWN button until the channel indicator indicates "3".
4) Connect a jumper wire twice between TL7515 and TL7516 to initialize the Microprocessor.
   (Channel indication changes from "3" to "1".)
   (It makes ready for Plug-in ATP Function.)
5) Perform the PG SHIFTER ADJUSTMENT.
   (Refer to the Electrical Adjustment Procedures on page 2-3)

Note:
1) It should be performed before tuning.
2) Do not cut off the power source during reset and initialization.

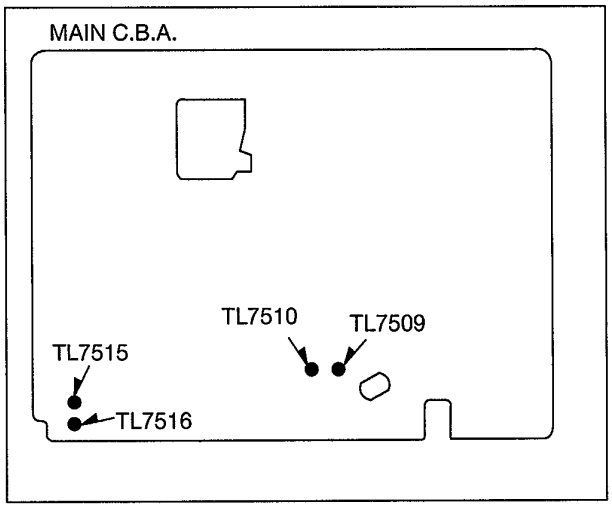


Fig. S1

1-1-2. CHECKING OF MAIN C.B.A.

When servicing the MAIN C.B.A., take out the MAIN C.B.A. and mechanism from the frame and turn over. And then connect the Extension Cable (VFK2744) between the POWER C.B.A. connector (P1102) and the MAIN C.B.A. connector (P1001) as shown in Fig. S2.

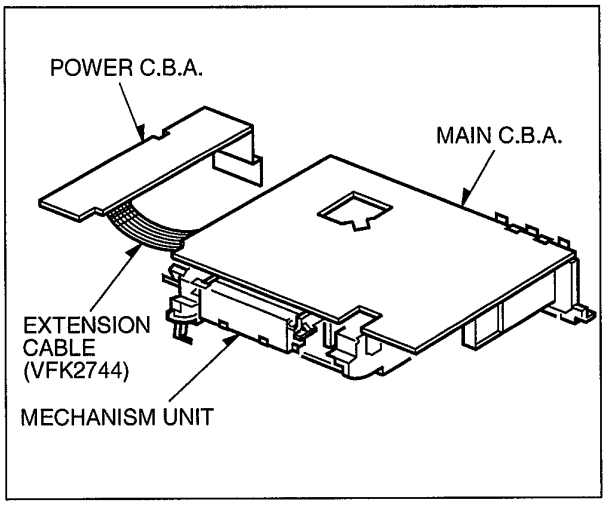


Fig. S2

1-1-3. CYLINDER REPLACEMENT

A. CYLINDER UNIT REPLACEMENT

1) Remove the 3 Screws (A). and replace the CYLINDER as a UNIT.

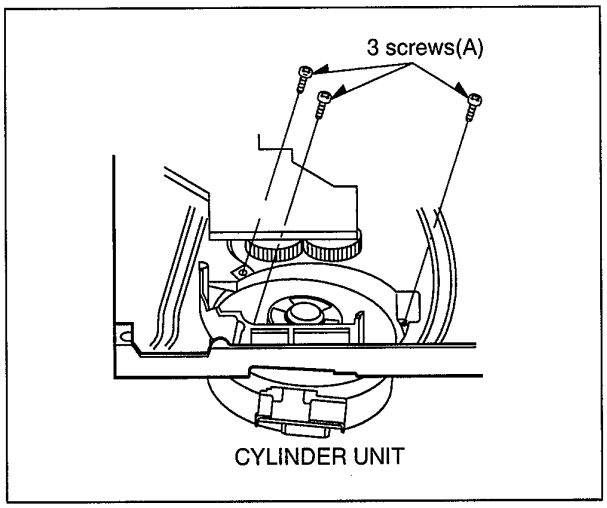


Fig. S3

B. UPPER CYLINDER REPLACEMENT

[DISASSEMBLY PROCEDURE]

1) Remove 2 screws (A).
2) Remove the Cylinder Stator Unit.
3) Remove 2 screws (B).
4) Remote the Cylinder Rotor Unit.
5) Loose hex screw (C) (1.5mm) and remove the Cylinder Retainer.
6) Remove the Upper Cylinder.

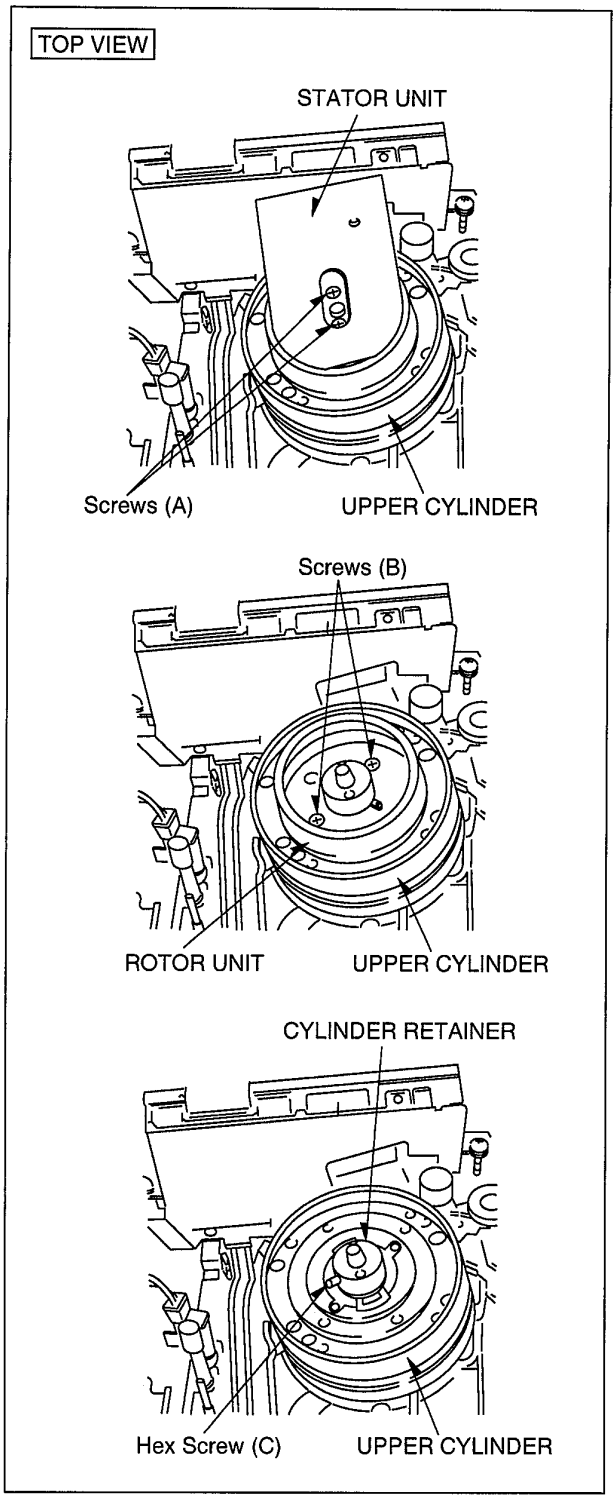


Fig. S4

[ASSEMBLY PROCEDURE]

When reassembling, perform the steps in the reverse order.

1) Install the Cylinder Retainer so that the 2 holes on top of the Cylinder Retainer are at right angles with the Head Amp Shield.
2) Tighten the hex screw (C) (1.5mm) while pressing down on top of the Cylinder Retainer.

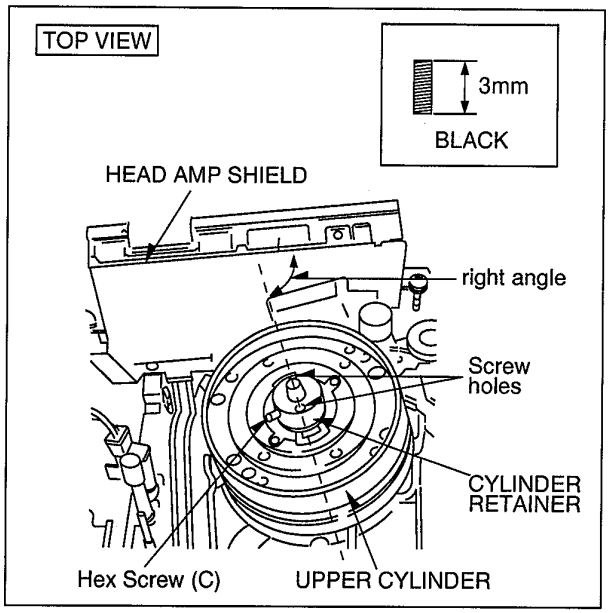


Fig. S5

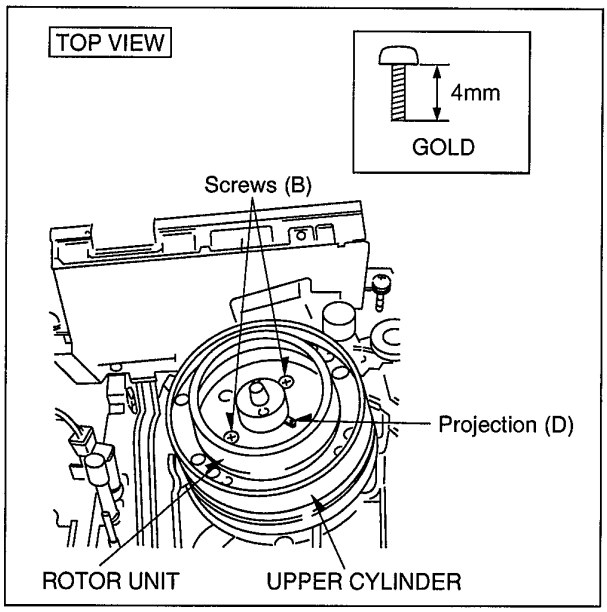


Fig. S6

3) Install the Cylinder Rotor Unit so that the inner hole of the Cylinder Rotor Unit fits to the small projection (D) on top of the Upper Cylinder.
4) Tighten 2 screws (B).
5) Install the Cylinder Stator Unit so that the rear side of the Cylinder Stator C.B.A. becomes parallel with the Head Amp Shield.
6) Tighten 2 screws (A).
7) Perform the PG SHIFTER ADJUSTMENT (Refer to Page 2-3).

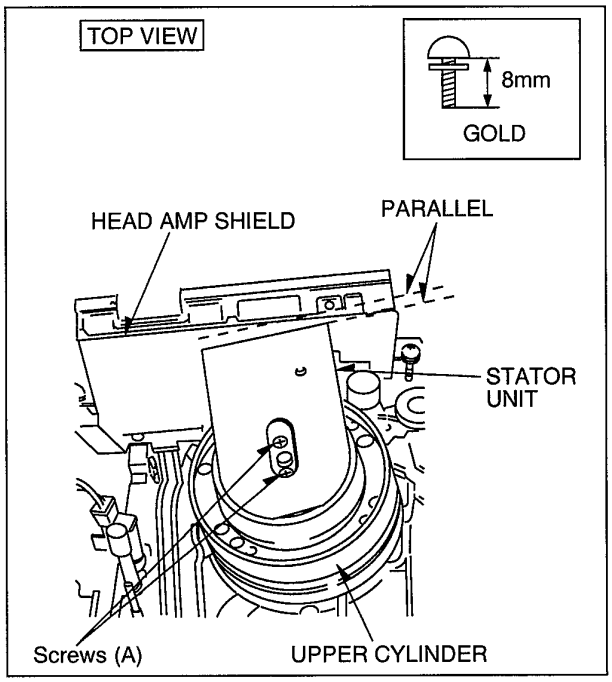


Fig. S7

1-1-4. FLAT CARD CABLE INSTLLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

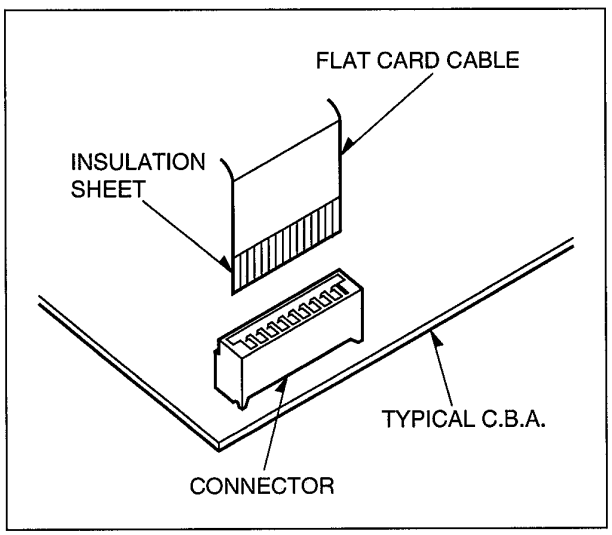


Fig. S8

1-2. SELF-TEST & SERVICE INFORMATION DISPLAY

Refer to the Service Manual for Z Mechanism Chassis. (Order No.: VRD9802005C2)

1-3. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

1. Service Information Display Operation
   1) Press FF and EJECT keys simultaneously for 3 seconds and set the Service Mode 7.
   2) Press STOP key in order to rotate the Loading Motor in unloading direction.
   (Pay attention to the slack of tape.)

2. Manual Operation
   1) Disconnect the AC Mains Lead and remove the Top Panel.
   2) Rotate the Main Cam Gear clockwise until the Loading Posts move to fully unloaded position as shown in Fig. S9. (Tape is remaining)

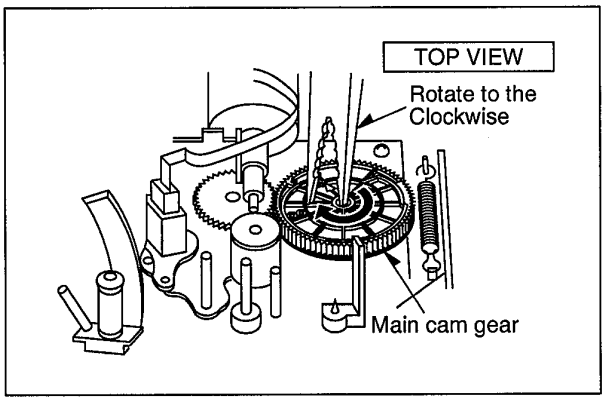


Fig. S9

3) Rotate the Capstan Motor clockwise from the bottom side to take up the slack of the tape.

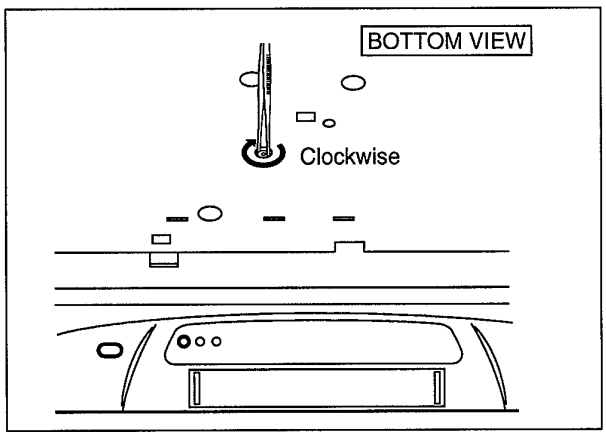
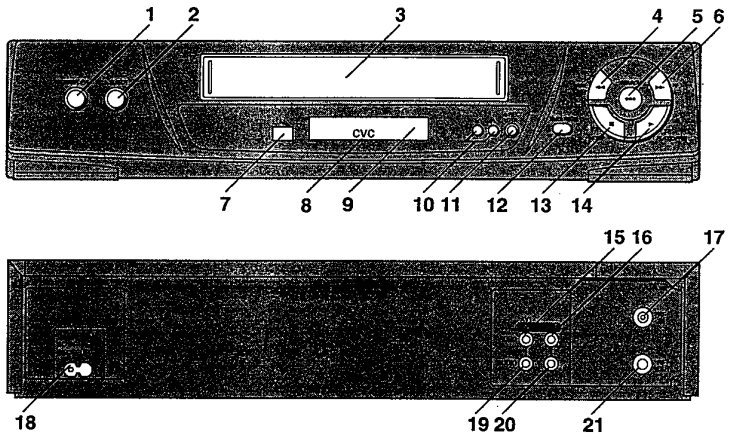


Fig. S10

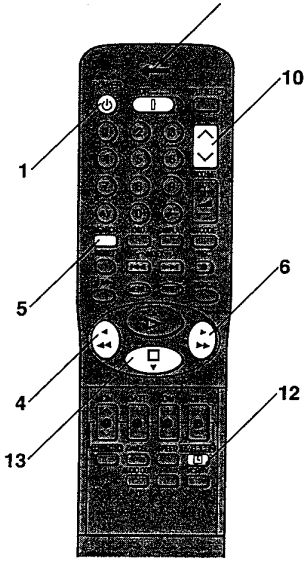
4) Rotate the Main Cam Gear clockwise until the cassette tape is ejected.

Controls and Connection Sockets

This section describes in detail the function of each button, switch and connection socket.



Set **VCR/TV** switch to **VCR** for using **POWER** ⏻ and the ∨ and ∧ buttons.



FRONT

1 POWER ⏻/I (POWER ⏻)
Press to switch the VCR from on to standby mode or vice versa. In standby mode, the VCR is still connected to the mains.

Set **VCR/TV** switch to **VCR** for using **POWER** ⏻ of remote controller.

2 ⏏ EJECT
Ejects a video cassette.

3 Cassette Compartment
Insert a video cassette here.

4 REW (REWIND) ◀◀

In the stop mode:	Rewinds the tape.
In the playback mode:	Searches back.
In the rewind mode:	Obtains high speed picture.

"◁◁" is lit.

5 SEARCH
Searches a recorded programme using the intro-jet scan functions.

6 FF (FAST FORWARD) ▶▶

In the stop mode:	Fast forwards the tape.
In the playback mode:	Searches forward.
In the fast forward mode:	Obtains high speed picture.

"▷▷" is lit.

7 Infra-red Remote Control Receiver Window

8 CVC (Crystal View Control) Indicator
This indicator is lit when the VCR is on.

9 Display

10 ∨∧
Selects the required programme position (TV station) of the VCR.

For tracking adjustment and vertical locking adjustment.
- For manual tracking adjustment
  The ∨ and ∧ buttons are used to adjust the tracking when, for example, noise bars on the picture during normal playback are better removed manually than by automatic digital tracking control. To return to automatic digital tracking control, press both buttons together.
- For slow tracking adjustment
  When noise bars appear during still or slow playback, switch over to slow playback and adjust with the ∨ or ∧ button to reduce the noise bars.
- For vertical locking adjustment
  Use the ∨ and ∧ buttons to minimize any vertical jitter during still picture playback.

Set **VCR/TV** switch to **VCR** for using the ∨ and ∧ buttons of remote controller.

11 ● REC/OTR
Starts recording.
For One-Touch Recording (OTR).

12 TIMER REC
Turns the timer recording function on and off.
is lit or not lit.
Once you operate the timer recording function, normal VCR operation is not possible unless you press this button again and release the VCR from the timer recording standby mode.

13 STOP ■ (⏏)
Stops playback or recording.
Ejects the video cassette.

14 PLAY/OFF ▶
Starts playback. "▷" is lit.
For the repeat playback function.
For the Play-Off Timer function.

REAR

15 VIDEO IN
Connects a video cable from a movie camera or another unit.

16 VIDEO OUT
Connects a video cable to a TV or another unit.

17 RF IN
Connects the external aerial.

18 AC IN~
Connects the main power supply.

19 AUDIO IN
Connects an audio cable from a movie camera or another unit.

20 AUDIO OUT
Connects an audio cable to a TV or another unit.

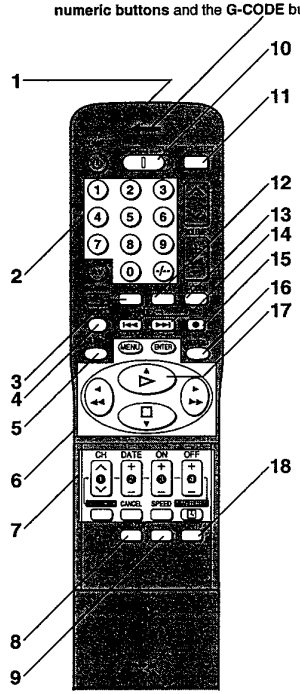
21 RF OUT
Connects the aerial terminal on a TV.

Infra-red Remote Controller

The remote control unit for this VCR is a universal remote controller. As such, some of its buttons are not used to operate this VCR.

VCR OPERATION

Set **VCR/TV** switch to **VCR** for using the **numeric buttons** and the **G-CODE** button.



1 Infra-red Transmitter

2 Numeric Buttons
Selects programme positions (1–99) of the VCR.
- Ensure that **VCR/TV** switch is set to **VCR**.

9: (9)

19: (-/--) → (1) → (9)

Programmes G-Code numbers.
- Ensure that **VCR/TV** switch is set to **VCR**.

3 OSD
For the On Screen Display Function.

4 RESET
Resets the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

5 ❚❚/▷ (PAUSE/SLOW)
During playback:
- By pressing: Still picture. " ❚❚ " is lit.
- By pressing for 2 seconds or more: Slow playback. " ❚❚▷" is lit.

During recording: Interrupts recording.

6 On Screen Display Menu Operation Buttons

MENU:
Makes the on screen display main menu appear on the TV screen.

ENTER:
Confirms the selection, or stores.

▲▼◀▶:
Makes selections from the on screen display.
- These buttons can also be used for playback, stop, rewind and fast forward mode.

7 Timer Recording Operation Buttons

CH, DATE, ON, OFF:
Programmes a timer recording.

PROG./CHECK:
Sets and checks timer programmes.

CANCEL:
Cancels the settings made for timer recording.

SPEED:
Selects the desired tape speed for recording.
SP gives the best picture quality.
LP (EP) gives the longest recording time.
- The indicator (SP, LP or EP) corresponding to the selected tape speed now appears on the VCR display or on screen display.

LP: This appears when PAL/MESECAM signals are input or output.
EP: This appears when NTSC signals are input or output.

TIMER REC ⏲:
Turns the timer recording function on and off.
⏲ is lit or not lit.
Once you operate the timer recording function, normal VCR operation is not possible unless you press this button again and release the VCR from the timer recording standby mode.

8 AUDIO OUT
This button is not used to operate this VCR.

9 No function.
This button is not used to operate this VCR.

10 VCR/TV switch
VCR: Selects the VCR operation mode.
TV: Selects the TV operation mode.

11 INPUT SELECT
Selects the AV external recording source.

12 DISPLAY
Changes the indication on the VCR display or on screen display as follows.
→Clock→Counter→Remaining Tape Time →

13 G-CODE
Used for G-Code programming.
- Ensure that **VCR/TV** switch is set to **VCR**.

14 INDEX ⏮, ⏭
Used for the index search function.

15 REC ●
Starts recording.

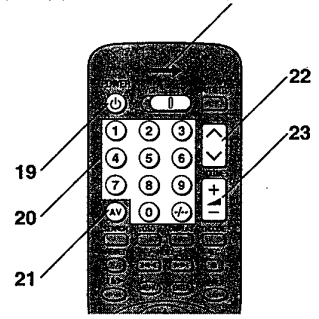
16 REPEAT
For the repeat playback function.

17 ▷ (PLAY)
Starts playback. "▷" is lit.
For the repeat playback function.

18 VCR/TV
Selects the VCR mode or TV mode.
(NV-SD280A: No function.)

TV OPERATION

Set **VCR/TV** switch to **TV** for using **POWER** ⏻ and the ∨ and ∧ buttons and the **numeric buttons**.



19 POWER ⏻
Press to switch the TV from on to standby mode or vice versa. In standby mode, the TV is still connected to the mains.
- With some TV models, it may only be possible to switch the TV to the standby mode using this button. In this case, use **AV** or the ∨ and ∧ buttons to switch the TV on.
- Ensure that **VCR/TV** switch is set to **TV**.

20 Numeric Buttons
Selects programme positions (1–99) of the TV.
- Ensure that **VCR/TV** switch is set to **TV**.

21 AV
Selects TV input.

22 ∨∧
Selects the required programme position (TV station) of the TV.
- Ensure that **VCR/TV** switch is set to **TV**.

23 VOLUME −◢+
Adjusts the volume of the TV.

Using for Operation of your TV

Only Panasonic televisions can be operated with the provided remote controller.

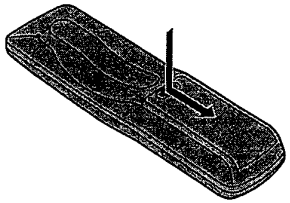
The settings for operating the TV with the remote controller have already been made.
No additional settings need to be performed.

Note:
Some Panasonic televisions cannot be operated using this remote controller.

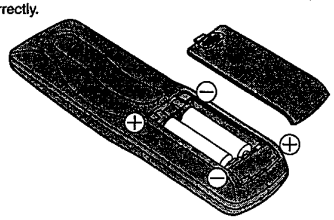
Remote Controller Setup

Installing the Batteries

1 To remove the cover, slide it in the direction of the arrow while pressing down.



2 Load the batteries with their polarity (⊕ and ⊖) aligned correctly.



3 Slide the cover back on.

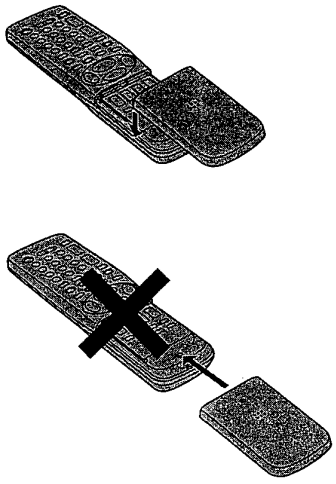
Power Source for the Remote Controller
The remote controller is powered by 2 "AA", "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

Precautions for Battery Replacement
- Load the new batteries with their polarity (⊕ and ⊖) aligned correctly.
- Do not apply heat to the batteries, or an internal short circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.
- Do not use rechargeable batteries.

If the Sliding Cover of the Remote Controller becomes Detached

If the sliding cover of remote controller becomes detached by mistake, fit it securely in place by putting it on top of the remote controller and pushing it down until it clicks into position, as shown in the figure below.

- It is not possible to fit the sliding cover in place by pushing it from the bottom end of the remote controller. Do not attempt to do this.



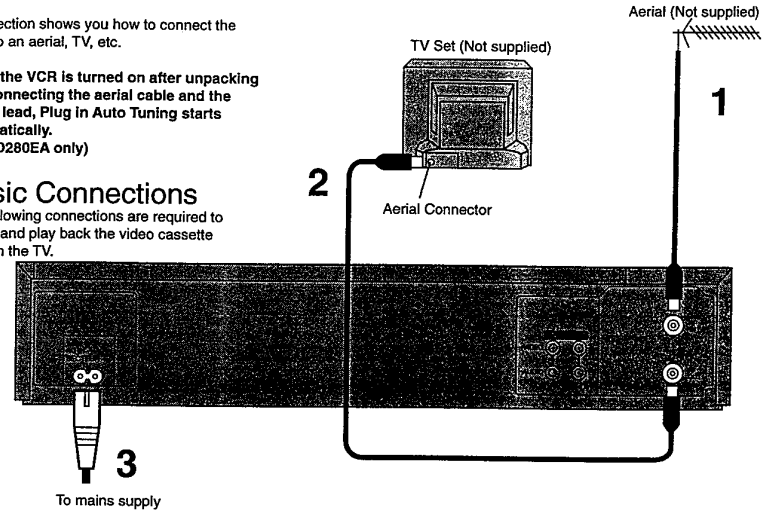
Connections

This section shows you how to connect the VCR to an aerial, TV, etc.

When the VCR is turned on after unpacking and connecting the aerial cable and the mains lead, Plug in Auto Tuning starts automatically.
(NV-SD280EA only)

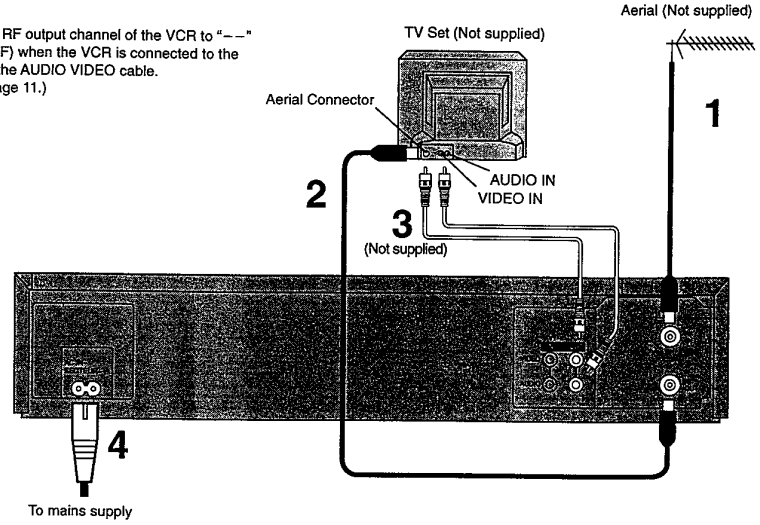
Basic Connections

The following connections are required to record and play back the video cassette through the TV.

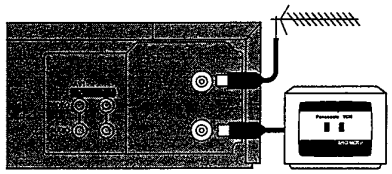


Connection to a TV using the Audio/Video Input Sockets

Set the RF output channel of the VCR to "– –" (RF OFF) when the VCR is connected to the TV via the AUDIO VIDEO cable.
(See page 11.)



Tuning the TV to your VCR



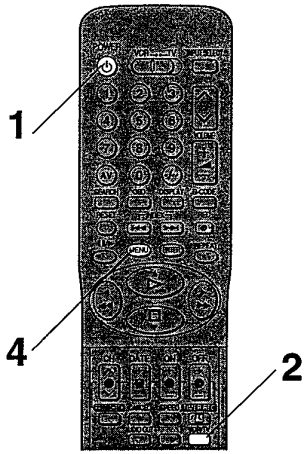
1,3

The VCR supplies a signal to the TV via the RF coaxial cable on channel AU28-69, or NZ2 or 3.
It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.
If you have connected the VCR to the TV through the video and audio input sockets, then you do not need to follow the procedure below.

When the VCR is turned on after unpacking and connecting the aerial cable and the mains lead, Plug in Auto Tuning starts automatically.
(NV-SD280EA only)

Notes:

- If the VCR is turned on with the antenna not connected, all channels are skipped. Therefore, firmly connect the antenna and then turn the VCR off and on again to execute Auto Tuning. (NV-SD280EA only)



- When Auto Tuning is cancelled halfway, Auto Tuning is not executed even if the VCR is turned off and then turned on again. In this case, see page 12 **"To restart Plug in Auto Tuning"**. (NV-SD280EA only)

Operations

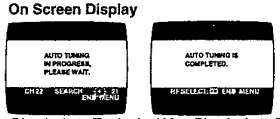
1 POWER

Turn on the TV and the VCR.

2 VCR/TV — VCR

Select the VCR mode.(NV-SD280EA only)

3 On Screen Display



(During Plug in Auto Tuning)

(After Plug in Auto Tuning)

Set the TV to an unused position which you wish to use for your video playback.

- Tune the TV until the display shown on the left appears on the screen. (Please refer to the TV manufacturers operating instructions regarding tuning.)

4 MENU

Press **MENU.**

How to Change the RF output Channel (using the remote controller)

In some rare cases after tuning the TV to your VCR, interference may be visible on the picture. To get rid of this interference, you can manually adjust the RF output channel a few channels up and down from the current setting. The procedure is described below.

Operations

1 Hold down **MENU** for 5 seconds or more.

- The VCR display changes as shown below and the VCR picture on the TV displays this pattern.

MENU

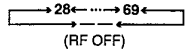
Example for NV-SD280A

Example for NV-SD280EA

2 Enter the desired channel number (AU28-69, NZ2 or 3) by using the **numeric buttons** or the ∨ and ∧ buttons.

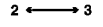
- Ensure that **VCR/TV** switch is set to **VCR.**
- Set the RF output channel of the VCR to "– –" (RF OFF) when the VCR is connected to the TV via the AUDIO VIDEO cable. (NV-SD280A only)
  Press the ∨ and ∧ buttons to display "– –".

For NV-SD280A



(RF OFF)

For NV-SD280EA



Example:

21: ⓪ → ② → ①

(Use only the ∨ and ∧ buttons for NV-SD280EA.)

3 Press **MENU** to finish the setting mode.

MENU

4 Retune your TV to the new RF channel for the VCR.

Note:
Even if the RF output channel has been changed, it is not necessary to perform the TV station search.

Storing TV Broadcasts in your VCR

The VCR is fitted with its own tuner (just like a normal TV) and can be preset to receive up to 99 TV broadcast stations.

Pre-programmed TV Channels (NV-SD280A only)

The local TV broadcast channels 2, 7, 9, 10 and 28 are factory-preset in this VCR.

That is, if you can receive television broadcasts on VHF channels 2, 7, 9, 10 and UHF channel 28, these are already tuned on the programme positions with the matching numbers. However, it is possible to cancel these settings and tune the local TV broadcast channels to any desired programme position.

For alternative settings and tuning of additional TV broadcast channels, follow the Tuning Operations.

Plug in Auto Tuning (NV-SD280EA only)

When the VCR is turned on after connecting the aerial cable and the mains lead, Auto Tuning starts.

On Screen Display

Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned programme position.

- If you turn the VCR off during Auto Tuning, Auto Tuning will stop halfway.
- If the VCR starts playback during Auto Tuning, Auto Tuning will stop halfway.

To Cancel Auto Tuning Mid-Operation:

Press **MENU** during Auto Tuning. Auto Tuning is cancelled.

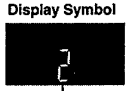
To restart Plug in Auto Tuning:

If Auto Tuning is cancelled by pressing MENU:

1 Press ⏏ **EJECT** and remove the video cassette.
2 Keep the ∨ and ∧ button on the VCR pressed simultaneously for 3 seconds or more during the VCR on.

- The channel displayed on the VCR display disappears for a moment then changes to 1.

Display Symbol



3 Disconnect the mains lead and then reconnect it.
4 Turn off the VCR and then turn it on.
- Auto Tuning commences.

If Auto Tuning stops halfway by turning the VCR off, playback or a power failure:

1 Disconnect the mains lead and then reconnect it.
2 Turn off the VCR and then turn it on.
- Auto Tuning commences.

Auto Tuning Using the On Screen Display

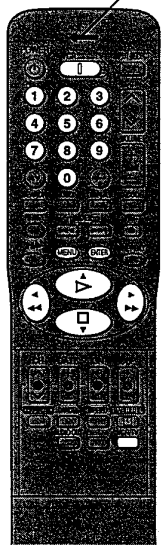
Introduction

The VCR is tuned automatically by Plug in Auto Tuning. However, Auto Tuning using the On Screen Display should be performed according to the following method if necessary. (NV-SD280EA only)

Preparations

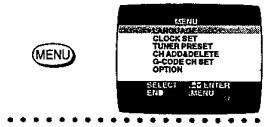
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR and select any programme position except AV.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)

Set the **VCR/TV** switch to **VCR** for using the **numeric buttons**.

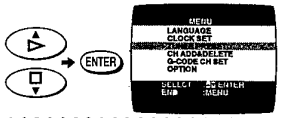


Operations **On Screen Display**

1 Press **MENU**.

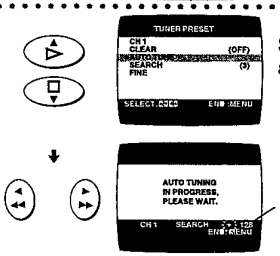


2 Select **TUNER PRESET**.



3 Select **AUTO TUNE** and press ◀ or ▶.

- When Auto Tuning is completed, the on screen display disappears and programme position 1 is selected.



Notes:

- Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned programme position. Other programme positions are skipped.
- Auto Tuning takes five or more minutes to complete its search.
- If the VCR is not correctly tuned by Auto Tuning, follow the procedure on the next page.
- To rearrange the channels at the desired channel positions, proceed with Manual Tuning.

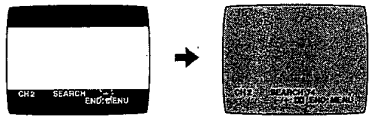
Channels that can be Received

	VHF	CATV	UHF
NV-SD280A	0-12	45-470MHz	28-69
NV-SD280EA	1-11	—	21-69

Manual Tuning Procedure

1 Press **MENU**.
2 Select **TUNER PRESET** by pressing ▲ or ▼ and **ENTER**.
3 Select **CH** by pressing ▲ or ▼ then select the channel number you want tuned by pressing ◄ or ►.
4 Confirm that **CLEAR** is set to **OFF**.
5 Select **SEARCH** by pressing ▲ or ▼ then press ◄ or ►.

On Screen Display



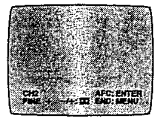
6 If the desired TV station has not been tuned, press ◄ or ► again.
- Press **MENU** and repeat steps **3–5** for each programme position you want to tune to a station.
- To exit, press **MENU** three times.

Direct Tuning

1 Repeat steps **1–4** in **Manual Tuning**.
2 Select **SEARCH** by pressing ▲ or ▼.
3 Using the **numeric buttons** on the remote controller (Ensure that **VCR/TV** switch is set to **VCR**.), enter the same number as the number of the channel to be tuned. For the 5A and 9A channels, input the following numbers: 90 for CH-5A, 91 for CH-9A.
- For other channels that require tuning, repeat steps **3–4** in **Manual Tuning** and steps **2–3** above.
- To exit, press **MENU** twice.

Fine Tuning Procedure

1 Press **MENU**.
2 Select **TUNER PRESET** by pressing ▲ or ▼ and **ENTER**.
3 Select **CH** by pressing ▲ or ▼ then select the programme position by pressing ◄ or ►.
4 Select **FINE** by pressing ▲ or ▼.
5 Press ◄ or ► to obtain the best tuning condition.



- To return the tuning to its former state, press **ENTER**.

6 Press **MENU**.

Blanking of Unused Programme Positions

1 Press **MENU**.
2 Select **TUNER PRESET** by pressing ▲ or ▼ and **ENTER**.
3 Select **CH** by pressing ▲ or ▼ then select the programme position by pressing ◄ or ►.
4 Select **CLEAR** by pressing ▲ or ▼.
5 Select **ON** by pressing ◄ or ►.
- Repeat steps **3–5** for other unused programme positions to skip during the selection of programme positions.
- To cancel the blanking of a programme position, select that programme position then select **CLEAR OFF**.

6 Press **MENU** twice.

CH ADD&DELETE

1 Press **MENU**.
2 Select **CH ADD&DELETE** by pressing ▲ or ▼ and **ENTER**.
3 Select **CH** by pressing ▲ or ▼ then select **ADD** or **DELETE** by pressing ► or ◄.

Before Adding

POS	CH
1	2
2	4
3	6
4	8
5	10
6	12
7	-
8	-

After Adding

POS	CH
1	2
2	4
3	--
4	6
5	8
6	10
7	12
8	-

Added CH, SHIFT ↓

Before Deleting

POS	CH
1	2
2	4
3	6
4	8
5	10
6	12
7	-
8	-

Deleted CH

After Deleting

POS	CH
1	2
2	4
3	8
4	10
5	12
6	-
7	-
8	-

SHIFT ↑

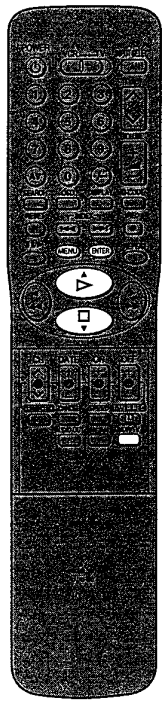
- Adding CH shifts the programme positions up, and deleting CH shifts them down, as shown in the table above.
- After adding, Tune the added **CH**. (See steps **3-5** in **Manual Tuning**.)
- Press **MENU** (for adding only) and repeat step 3 for each of the other programme positions.

4 Press **MENU** several times.

Language Setting of the On Screen Display

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)



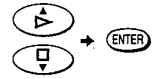
To Select the Desired Language

Select one of the two languages displayed: English and Russian.

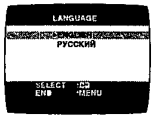
On Screen Display

1 Press **MENU**.

2 Select **LANGUAGE**.



3 Select the desired language.



4 Press **MENU** twice.

Note:
The menu screen has a blue background. However, if there is no signal input while AV is selected, the menu screen may change to black and white when **MENU** is pressed. This does not indicate a mulfunction. If it happens, either input a signal or select another programme position.

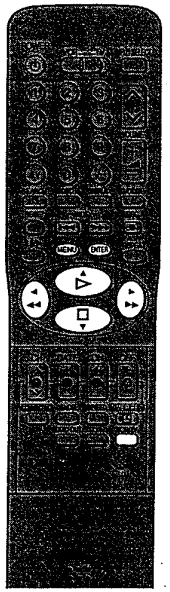
Setting the Clock of your VCR

The built-in digital clock is used to activate the timer for automatic recording and must be set to the correct time. It employs the 24-hour system.

Example:
Date; 16 October, 1999
Time; 20:15

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)



Time Reset Function

If the clock is less than two minutes slow or fast, it can easily be reset to the proper time.

Example:
Resetting the clock to 12:00.00

1 Select **CLOCK SET** from the OSD menu and press **ENTER**.
2 When the current clock display on the VCR is between 11:58.00 and 12:01.59, press **MENU** as soon as you hear the 12:00.00 signal. This resets the time to 12:00.00.

Operations **On Screen Display**

1 (MENU)

Press **MENU.**

2 (▲/▼) → (ENTER)

Select **CLOCK SET.**

3 Set each item by pressing ▲ or ▼ and ►. Press ◄ to return to the previous item.

Set **Year** to "1999".

Set **Month** to "10".

Set **Date** to "16".

Set **Time** to "20:15".
- When it is kept pressed, the indication changes in 30-minute steps.
- There is no need to press ►.

4 (MENU)

Display Symbol

Press **MENU.**
- The clock starts.

Note:
The clock will operate for at least 1 year in total after it has been set, – in the event of a power failure, it will operate on its backup system. After 1 year, it will only operate for 1 hour on its backup system.

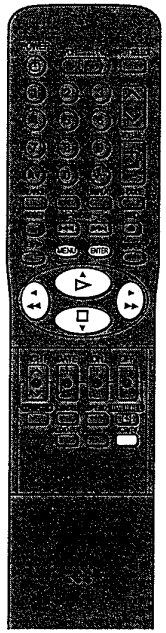
Preparations for G-Code Programming

Identification numbers must be set for G-Code programming. Proceed with the G-Code programming operation described on page 29, and the identification numbers of the TV stations concerned will be set automatically. This will allow G-Code programming to be undertaken without performing the operation described on this page. However, you can follow the setting procedure described below if you wish to set the identification numbers of all the TV stations prior to actual programming.

"Identification numbers" refer to the numbers used for identifying TV stations.
The programme positions on the VCR receiving the TV stations are set in these identification numbers.
Have a newspaper or magazine which lists today's local TV station programmes and G-Code numbers on hand.

Preparations

- Set the clock of the VCR. See page 16.
- Store TV broadcasts in your VCR. See pages 12–14.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)

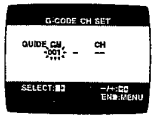


Operations **On Screen Display**

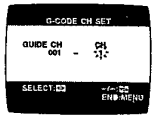
1 Press **MENU.** (MENU)

2 Select **G-CODE CH SET.** (▲/▼) → (ENTER)

3 Select the identification number **(GUIDE CH)** (001–255). (▲/▼)



4 Press ◄ or ► then select the programme position (1–99, AV). (◄/►) → (▲/▼)



- To set the other TV stations, press ◄ or ► then repeat steps 3 and 4.

5 Press **MENU** twice. (MENU)

Note:
To receive satellite stations, the satellite receiver must be connected to the VCR and programme position must be set depending on the type of connection.
AV: When the satellite receiver is connected to the audio/video input sockets.
- When the satellite receiver is connected by means of the RF coaxial cable, set to a free programme position between 1 and 99.

Example:
(NV-SD280A)

TV Station	Position Number	Identification Number (GUIDE CH)
ABC	2	002
ATN	7	007
TCN	9	009
TEN	10	010
SBS	28	028/001

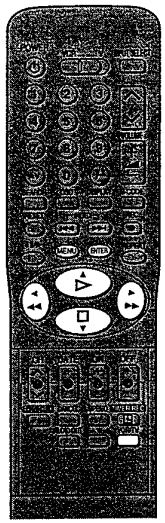
Example:
(NV-SD280EA)

TV Station	Position Number	Identification Number (GUIDE CH)
TV ONE	1	001
CHANNEL 2	2	002
TV3	3	003
SKY TV MOVIES	*	004
SKY TV SPORTS		005
SKY TV NEWS		006
SKY ORANGE		007
SKY DISCOVERY & TRACKSIDE		008
CTV	11	011

***Connection to the Sky decoder**
When the Sky decoder is connected to the audio video input sockets:
Set to "AV".
When the Sky decoder is connected by means of the RF coaxial cable:
Set to the programme position that the Sky decoder is tuned to.
- When G-Code programming, turn on the Sky decoder and select the desired Sky channel.

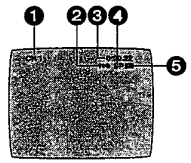
Settings Using the On Screen Display

Preparations
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)



On Screen Display
1 Press **OSD**.

On Screen Display



2 Press **OSD** again to make the on screen display disappear.

❶ Programme position

❷ Tape running display

Stop, Eject	
Rewind, Review	◀◀
Fast forward, Cue	▶▶
Playback	▶
Still playback	❚❚
Recording	●
Recording pause	❚❚●
Slow playback	❚▶
Repeat playback	R ▶

❸ Present time/Tape counter/Remaining tape time/OTR indication/Dew/Index search/Play-Off Timer

Information	Display
Present time	17:24
Tape counter	−2:35.47
Remaining tape time	REMAIN 2:34
OTR indication	OTR 60
Dew	DEW
Index search	S 01
Play-Off Timer	OFF⏲60

❹ Tape speed indicator (SP/LP/EP)

❺ Cassette-in indicator

Note:
The on screen display may be disturbed or disappear during special playback.

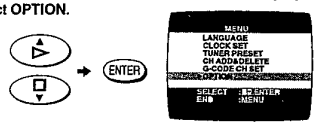
Option Setting

To Select the Corresponding Video Cassette Tape Length to Display the Approximate Remaining Tape Time (TAPE SELECT)

1 Press **MENU**.

On Screen Display

2 Select **OPTION**.



3 Select **TAPE SELECT**.

4 Select the corresponding video cassette tape length.

E180: For E30, -60, -90, -120, -150 and -180 tapes.
E195: For E195 tape.
E240: For E240 tape.
E260: For E260 and -300 tapes.

- The remaining tape time may not be displayed correctly depending on the tape used.

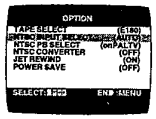
5 Press **MENU** twice to make the on screen display disappear.

NTSC INPUT SELECT

Follow steps 1 to 2 of **TAPE SELECT**.

3 Select **NTSC INPUT SELECT**.

4 Select **AUTO.**
Allows NTSC 4.43 or 3.58 signals to be distinguished automatically.



- Normally set at this position. If the tape has not recorded correctly, select 4.43 or 3.58.

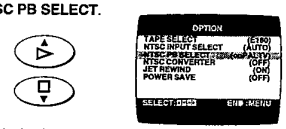
4.43: When recording NTSC 4.43 signals from an external signal source.
3.58: When recording NTSC 3.58 signals from an external signal source.
Some programmes on NTSC 3.58 sysyem cannot be recorded correctly at this position.

5 Press **MENU** twice to make the on screen display disappear.

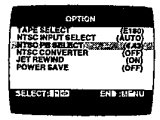
NTSC PB SELECT

Follow steps 1 to 2 of **TAPE SELECT**.

3 Select **NTSC PB SELECT**.



4 Select the desired position according to the colour TV system of the TV.



on PAL TV: For TVs that can receive PAL signals.
4.43: For TVs that can receive NTSC 4.43 signals.
3.58: For TVs that can receive NTSC 3.58 signals.

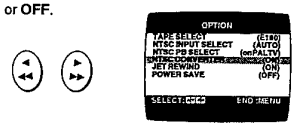
5 Press **MENU** twice to make the on screen display disappear.

NTSC CONVERTER

When playing a NTSC game connected to this VCR via a PAL system TV, set **NTSC CONVERTER** to **ON**.
Follow steps 1 to 2 of **TAPE SELECT**.

3 Select **NTSC CONVERTER**.

4 Select **ON** or **OFF**.



OFF: Normally set at this position.
ON: PAL TV can receive signals from NTSC 3.58 signal source (e.g., NTSC game machines.) connected to the VCR main unit. However, when recording, this function does not work.

- When receiving NTSC 4.43 signals, this function does not work correctly.

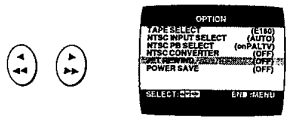
5 Press **MENU** twice to make the on screen display disappear.

JET REWIND

This function enables the tape to rewind at the 360 times speed.
Follow steps 1 to 2 of **TAPE SELECT**.

3 Select **JET REWIND**.

4 Select **ON** or **OFF**.



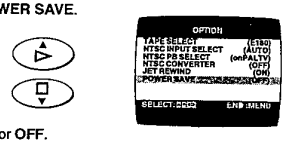
- Select **OFF** if you wish to rewind the VCR slowly.

5 Press **MENU** twice to make the on screen display disappear.

POWER SAVE

Follow steps 1 to 2 of **TAPE SELECT**.

3 Select **POWER SAVE**.

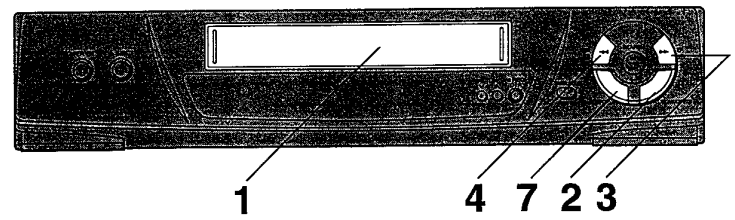


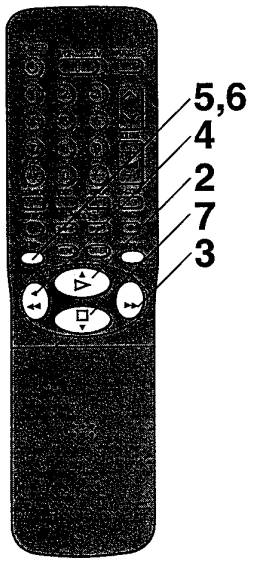
4 Select **ON** or **OFF**.

ON: This setting makes the display disappear when the VCR is off.
It will not operate in the Timer standby mode.
After recording all programmed data, the VCR will go into Power save mode.
OFF: This setting does not conserve power when the VCR is off.

5 Press **MENU** twice to make the on screen display disappear.

Playback





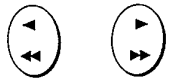
	Operations	Display Symbols	
1			Insert a recorded video cassette tape.
2			Start viewing the picture.
3			Search forward by tapping ▶▶ (FF). •To change back to normal playback, press ▷ (PLAY).
4			Search backward by tapping ◀◀ (REW). •To change back to normal playback, press ▷ (PLAY).
5	II/I▸		View a still picture. •Press II/I▸ (PAUSE/SLOW). •To continue normal playback, press ▷ (PLAY) or II/I▸ (PAUSE/SLOW).
6	II/I▸		View a slow motion picture. •Keep II/I▸ (PAUSE/SLOW) pressed for 2 seconds or more. •To continue normal playback, press ▷ (PLAY).
7			Stop viewing the picture.

Note:
If you keep ▶▶ (FF) or ◀◀ (REW) pressed in step 3 or 4, search playback is activated while the button is pressed, and operation returns to normal playback when the button is released.

Other Playback Functions

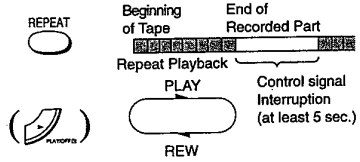
To Obtain a High Speed Picture During Fast Forward or Rewind

Keep ▶▶ (FF) pressed during fast forward.
Keep ◀◀ (REW) pressed during rewind.



To Play back the Recorded Part Repeatedly

Press **REPEAT** or keep **PLAY/OFF** ⏲ ▶ pressed for 5 seconds or more.
The "R ▶" display appears on the TV screen.



- Repeat Playback function does not work during Play-Off Timer.
- Press □ (STOP) to release the VCR from the Repeat Playback mode.

To Eject the Video Cassette Using the Remote Controller

Keep pressing □ (STOP) for at least 3 seconds.

Notes:

- Select **NTSC PB SELECT** according to the video system of a tape you want to play back. See page 20.

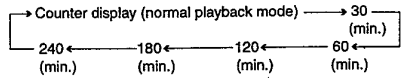
When playback the NTSC tapes:
on PAL TV: The output signal is the quasi-PAL system.
4.43: The output signal is the NTSC 4.43 system.
3.58: The output signal is the NTSC 3.58 system.

When playback the PAL tapes:
The output signal is the PAL system regardless of position of **NTSC PB SELECT**.
NTSC 3.58 recording requires **NTSC INPUT SELECT** to be in the AUTO or 3.58 position, however if **NTSC INPUT SELECT** is in this position when recording a NTSC 3.58 signal, no colour is available for the PAL TV. Once the recording is completed, you then need to select **on PAL TV** to view the recording in colour on PAL TV.

- Cue, review or slow playback will be automatically released after 10 minutes, and still playback, after 5 minutes.
- In Cue and Review playback, noise bars and distortions may occur on the screen. However, this is not a malfunction.
- In the LP (EP) mode only:
  1. During any playback mode other than normal playback, the picture may have some noise bars, the colour may be unstable, or a black and white picture may appear.
  2. When playing back a tape which was recorded on another VCR, it may be necessary to adjust tracking control. In some cases the picture quality may still be inferior. This is due to format constraints.
  3. Depending on the TV set used, the playback picture may roll up or down during special playback (Pause, Cue, Review, or Slow playback mode). However, this is not an indication of a malfunction.

Play-Off Timer

Whenever you are playing back and wish to stop the tape automatically, simply set the playback duration by pressing **PLAY/OFF** ⏲ ▶ repeatedly.
The duration indicated on the VCR display changes by pressing **PLAY/OFF** ⏲ ▶ as follows.



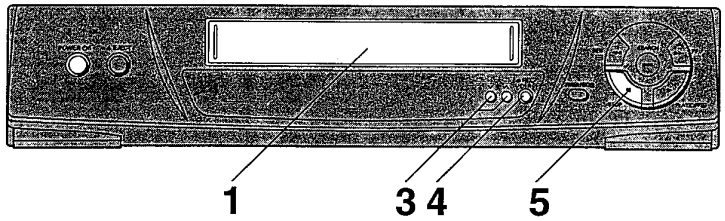
Press **PLAY/OFF** ⏲ ▶ **on the VCR main unit** during playback.

- The VCR will automatically switch off when Play-Off Timer is completed. To turn the VCR on again, press **POWER** ⏻ **(POWER** ⏻**/I)**.

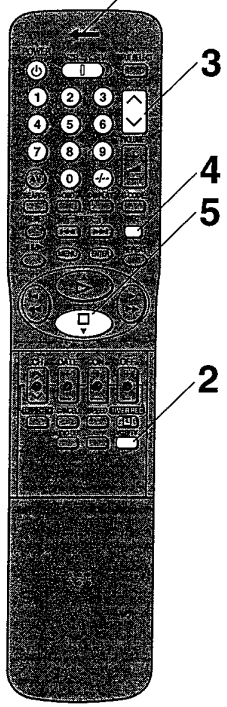
Notes:

- The Play-Off Timer function works during normal playback.
- When the tape reaches its end during Play-Off Timer, the tape will be rewound to the start and the VCR will turn itself off.
- To stop Play-Off Timer at any time, press □ **(STOP)** or **POWER** ⏻ **(POWER** ⏻**/I)**.
- Repeat Playback function does not work during Play-Off Timer.

Manual Recording

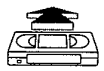


Set **VCR/TV** switch to **VCR** for using **POWER** ⏻, the ∨ and ∧ buttons and the **numeric buttons**.



Operations **Display Symbols**

1



Insert a video cassette tape with an intact erasure prevention tab.
- If it has already been inserted, press **POWER** ⏻/**I** (**POWER** ⏻) to turn the VCR on.

2

VCR/TV

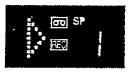
Select the VCR mode. (NV-SD280EA only)

3

Select the TV station.
- It is also possible to select by pressing **numeric buttons**.
- Ensure that **VCR/TV** switch is set to **VCR**.

4

REC



Start recording.

5

Stop recording.

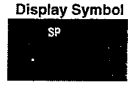
To Select the Desired Tape Speed

Press **SPEED** before recording.
SP gives the best picture quality.LP (EP) gives the longest recording time.

- The indicator (SP, LP or EP) corresponding to the selected tape speed now appears on the VCR display or on screen display.
  - LP: This appears when PAL/MESECAM signals are input or output.
  - EP: This appears when NTSC signals are input or output.

Display Symbol

SPEED



To Interrupt Recording

Press **II/▸ (PAUSE/SLOW)** during recording.
Press again to continue recording.

II/▸

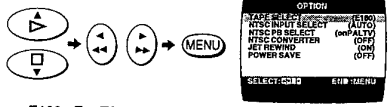
To Record One TV Programme while Viewing Another One

1 Refer to steps **1–3** of the manual recording operation.
2 Select the TV programme on your TV that you wish to view now.
- Ensure that **VCR/TV** switch is set to **TV**.

To Display the Approximate Remaining Tape Time

1 Select **TAPE SELECT** from the on screen display and select the corresponding video cassette tape length. See page 20.

On Screen Display



E180: For E30, -60, -90, -120, -150 and -180 tapes.
E195: For E195 tape.
E240: For E240 tape.
E260: For E260 and -300 tapes.

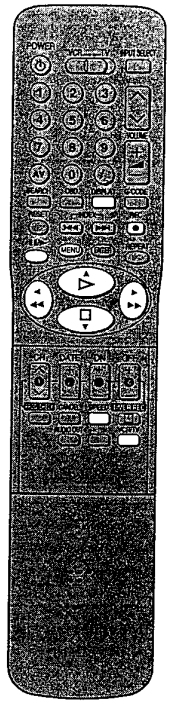
2 Press **DISPLAY**.

DISPLAY

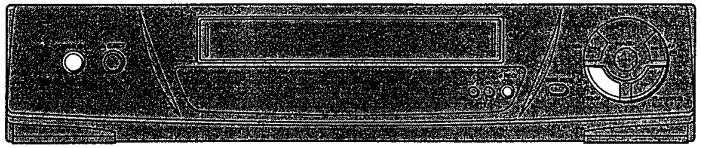
The display changes as follows each time **DISPLAY** is pressed.

→Clock→Counter→**Remaining Tape Time**

- The remaining tape time may not be displayed correctly depending on the tape used.



Notes:
- When a video cassette with a broken off erasure prevention tab is inserted, the "CD" indication will flash to indicate that recording is not possible even if **REC ● (● REC/OTR)** is pressed.
- The recording pause mode will be automatically released after 5 minutes, and the VCR will return to the stop mode.



One-Touch Recording (OTR)

Whenever you are in a hurry to start a timer recording with automatic stop in your absence, simply set the recording duration by pressing ● **REC/OTR** repeatedly.
The duration indicated on the VCR display changes by pressing ● **REC/OTR** as follows:

Counter display (normal recording mode) → 30 (min.) → 60 (min.) → 120 (min.) → 180 (min.) → 240 (min.) → Counter display (normal recording mode)

Preparation

Insert a video cassette with an intact erasure prevention tab.

Operations

1 Ready the video source which is to be recorded, and start recording.

2 Press ● **REC/OTR on the VCR main unit** repeatedly to select the desired recording duration.

●The VCR will automatically switch off when OTR is completed. To turn the VCR on again, press **POWER** ⏻/I

Notes:
- The OTR function works during normal recording.
- When the tape reaches its end during OTR, the VCR will turn itself off.
- To stop OTR at any time, press **STOP** ■ or **POWER** ⏻/I.

Timer Recording

4-Key Programming

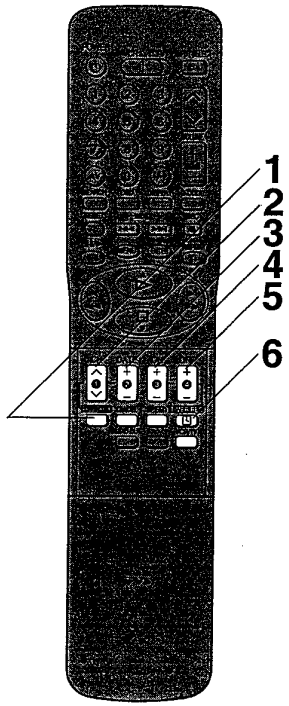
Up to 8 timer programmes, including weekly and daily programmes, can be recorded up to one month in advance by setting the timer.

Preparations

- Insert a video cassette tape with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Check that the clock is set to the correct time. If it has not been set, refer to page 17.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)

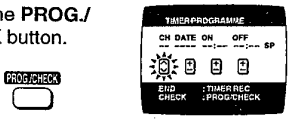
Example:

Programme position (channel);	2
Date;	27 October
Starting time;	20:02
Ending time;	21:30
(Present date; 16 October)	

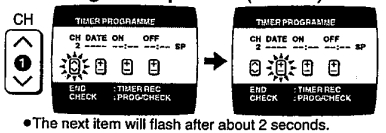


Operations **On Screen Display**

1 Press the **PROG./CHECK** button.

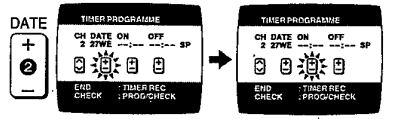


2 Set **Programme position** (channel) to "2".

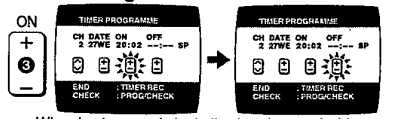


●The next item will flash after about 2 seconds.

3 Set **Date** to "27WE".

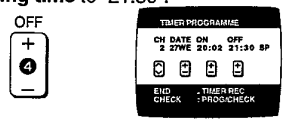


4 Set **Starting time** to "20:02".



●When kept pressed, the indication changes in 30-minute steps.

5 Set **Ending time** to "21:30".



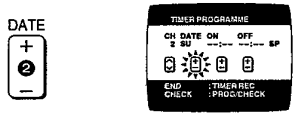
6 TIMER REC To activate timer recording, press **TIMER REC** ⏲.

●The "PROGRAMME IS COMPLETE." message appears.
●The VCR will be set to the timer recording standby mode after about 1 minute if **TIMER REC** ⏲ is not pressed.

Weekly Timer Recording

In step **3**, select the desired day by pressing **DATE −**.
For example, SU (Sunday)

On Screen Display



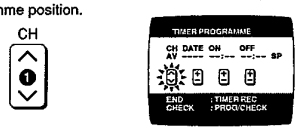
(SU=Sunday, MO=Monday, TU=Tuesday, WE=Wednesday, TH=Thursday, FR=Friday, SA=Saturday)

Daily Timer Recording

For this timer function, several groups of days can be selected.
Ⓐ Daily recording from Monday to Friday (MO–FR)
Ⓑ Daily recording from Monday to Saturday (MO–SA)
Ⓒ Daily recording from Sunday to Saturday (SU–SA)
In step **3**, select the desired days by pressing **DATE −**.
For example, Ⓒ

Timer Recording from an External Signal Source

If timer recording is performed by a unit connected to the audio/video input sockets, select the AV indicator in step **2** for the programme position.

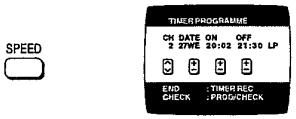


Setting other Programmes in Succession

Repeat steps **1–6**.

Selecting the Desired Tape Speed

Press **SPEED** to make the selection in any of steps **1–5**.



Checking a Timer Programme

- The VCR must be turned on, or the timer recording indicator "⏲" lit.
- Confirm that the TV is on and the VCR viewing channel is selected.

Press **PROG./CHECK** twice.

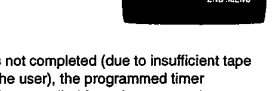
Cancelling a Timer Programme

- The VCR must be turned on, or in timer recording standby mode.
- Confirm that the TV is on and the VCR viewing channel is selected.

1 Press **PROG./CHECK** twice.

2 Press **PROG./CHECK** repeatedly until the desired timer programme number flashes on and off.

3 Press **CANCEL**.



Note:
If timer recording is not completed (due to insufficient tape or cancellation by the user), the programmed timer recording data will be cancelled from the memory by 4 A.M. two days later.
However, if, at that time, the timer recording function is activated, the programmed timer recording data will be cancelled at 4 A.M. the next day.

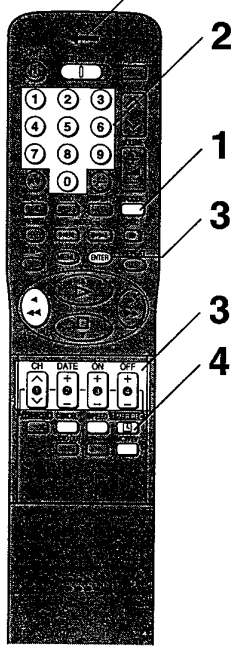
G-Code Programming

Programming is now easier than ever; simply enter the G-Code number found in the programme scheduling pages of newspapers and magazines.
G-Code numbers are numbers assigned to programmes listed in the TV programme schedule found in newspapers and TV guides. When these numbers are entered, the numbers are converted to actual programming.

Preparations

- Insert a video cassette tape with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.
- Check that the clock is set to the correct time. If it has not been set, refer to page 16.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)

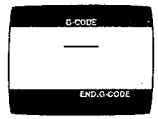
Set **VCR/TV** switch to **VCR** for using the **numeric buttons** and the **G-CODE** button.



Operations **On Screen Display**

1 Press **G-CODE**.
- Ensure that **VCR/TV** switch is set to **VCR**.

G-CODE

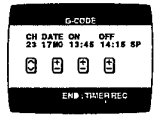


2 Enter a G-Code number.
Example:123456

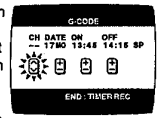
- If you have entered the wrong number, press **CANCEL** then enter the proper number. An alternative method is to press ◀ and then enter the proper number.

3 Press **ENTER**.

ENTER



- Confirm that the number corresponds to the right programme. If the display looks like this:



select the programme position of your VCR which receives the TV station you entered at step **2** using the ❶ **(CH)** then press **ENTER**.
- To make any corrections, use buttons ❷ **(DATE)**, ❸ **(ON)** and ❹ **(OFF)** the same way as described on page 28.

4 Press **TIMER REC** ⏲.

TIMER REC

Notes:
- To select the desired tape speed, press **SPEED** after step **3**.
- When the G-Code number is used for programming, the recording time may be slightly longer than the actual programme time.
- Repeat steps **2** and **3** if "PROGRAMME IS INCOMPLETE:" appears.
- When programming two or more programmes, repeat steps **1–4**.
- The procedures for checking and cancelling a timer programme are the same as on page 28.

Search Functions

To Find the Beginning of Each Recording (VHS Index Search System)

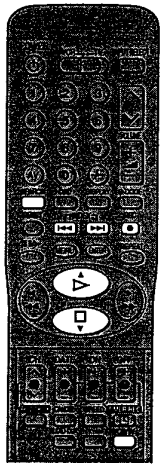
Example:
Searching for the 2nd recorded segment in the forward direction.
Press **INDEX ▶▶I** twice.
(This operation is performed while the VCR is in the stop mode or normal playback mode.)

Display Symbol

- After finding the specific recorded segment, playback starts automatically.
- For the reverse direction, press **INDEX I◀◀**.
- Up to 20 index signals can be searched for in both directions.
- When the opposite **INDEX** button is pressed, the number will decrease to 1.
- The figure on the display decreases by 1 each time an index signal is located.

Recording Index Signals
Index signals are recorded in the following cases.
- When a recording is started by pressing **REC ●** (**● REC/OTR**).
- When timer recording is activated.

Note:
The index search function can only work correctly if the index signals are spaced at least 5 minutes.



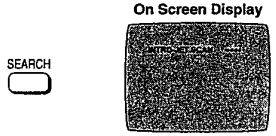
Searching while checking the video cassette contents (Intro-Jet Scan)

The approximate beginnings of each recorded programme are played in succession at the high speed so that the programme to be viewed can be located easily.

Preparations
- Confirm that the TV is on and the VCR viewing channel is selected.
- Press **VCR/TV** to select the VCR mode. (NV-SD280EA only)
- Load the pre-recorded video cassette.

1 Press **SEARCH**.
(This operation is performed while the VCR is OFF or while the VCR is in the stop mode or normal playback mode with the VCR ON.)

On Screen Display



- The tape is rewound to the start, and played for about 10 seconds at the high speed. It is then fast forwarded, the VISS (VHS Index Search System) signals are searched in succession, and each time the signals are found, the tape is played for about 10 seconds at the high speed.

2 When the programme to be viewed is reached, press ▷ **(PLAY)**.

- Normal playback now commences.

To stop the operation at any time
Press □ **(STOP)**.

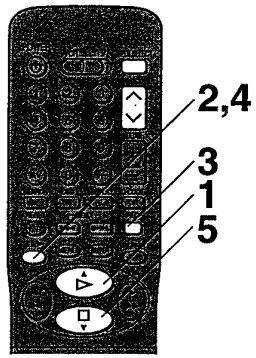
Note:
This function may not work properly when recorded programmes run for 15 minutes or less.

Making a copy

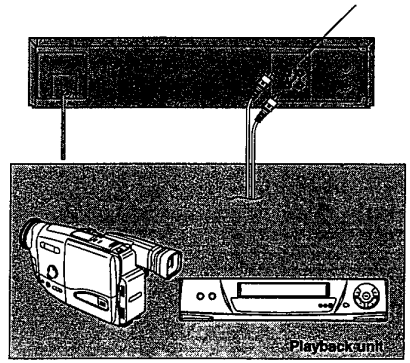
Copying

This function can be used to make up an edited tape from other recordings or video sources.
A new scene can be added to the end of previous one.

Preparations
- Connect a movie camera or another VCR to this VCR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the audio source required by pressing **INPUT SELECT** to set AV.



Recording VCR



Operations

1 Search for the end of the previous recording.

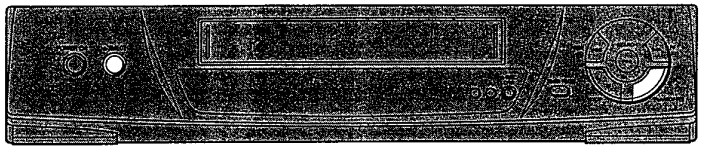
2 Press **❚❚/▸ (PAUSE/SLOW)**.

3 Press **REC ●** to switch the VCR from the pause mode to the recording standby mode.

4 Start the new recording by pressing **❚❚/▸ (PAUSE/SLOW)** again.

5 Press □ **(STOP)** to stop recording.

Other Functions



NTSC Playback

Tapes recorded in the NTSC system can be played back with this VCR via a PAL system TV.

- Select **NTSC PB SELECT** from the on screen display according to the colour TV system of the TV. (See page 20.)

on PAL TV: For TVs that can receive PAL signals.
4.43: For TVs that can receive NTSC 4.43 signals.
3.58: For TVs that can receive NTSC 3.58 signals.

Note:
On some TVs, the playback picture may roll up or down; adjust this using the V-HOLD control on the TV. TVs not equipped with a V-HOLD control cannot correct this condition. The playback picture may shrink vertically, and black bars may appear both on the top and bottom of the screen. This does not indicate a malfunction.

- During cue, review, still or slow playback, the picture may not be in colour. Alternatively, the top of the TV screen may be distorted.

Note for only NTSC Playback on PAL system TV
This function is designed to allow only the playback of tapes recorded by NTSC signals on a PAL system TV. The NTSC signal is not completely converted to a PAL signal. For this reason, images played back by this function cannot be recorded correctly on other VCRs.

Other Automatic Functions

Automatic Playback

When a video cassette without an erasure prevention tab is inserted, the VCR starts playback automatically.

VCR-off Playback

When the VCR is off, an inserted video cassette can be played back by pressing **PLAY/OFF** ⏏ ▶.

Automatic Rewinding

When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning.
During OTR, this function will not work.

Automatic Switching Off and Ejection

When the VCR is switched off, an inserted video cassette can be ejected by simply pressing ▲ **EJECT**. The VCR will eject the video cassette and automatically turn itself off again.

Usage Precautions

Please read these precautions before you operate this VCR.

Avoid Sudden Changes in Temperature

If the VCR is suddenly moved from a cold to a warm place, dew may form on the tape and inside the VCR. In this case, the "d" dew indicator will flash on and off and the VCR will not operate.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increases in temperature. Do not block or cover these holes. Avoid covering the holes with soft materials such as cloth or paper.

Avoid High Temperature

Keep the VCR away from extreme heat sources such as direct sunlight, heating radiators, or closed automobiles.

Avoid Magnets or Magnetized objects

Never bring a magnet or magnetized object near the VCR as it will adversely affect its performance of the VCR. Keep the VCR away from other equipments as much as possible when using it, avoid any adverse effect on performance for both the VCR and the equipment.

Do Not Place Fingers or Other Objects Inside

Do not attempt to disassemble the VCR. Touching internal parts of this VCR is dangerous, and may cause it serious damage. There are no user serviceable parts inside.

Avoid Water

Keep the VCR away from flower vases, tubs, sinks, etc. If liquids are spilled into the VCR, serious damage could occur. If you spill any liquid into the VCR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VCR.

Cleaning the VCR

Wipe the VCR with a clean, dry cloth. Never use cleaning fluid or other chemicals. Do not use compressed air to remove any dust.

Stacking

Place the VCR in a horizontal position, and do not place anything heavy on it.

If Dew Forms in the VCR

Dew may form in the VCR if:

- The VCR is in a room where the heater has just been turned on.
- The VCR is in a room with steam or high humidity.
- The VCR is brought from cold surroundings into a well-heated room.
- The VCR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

When dew forms in the VCR, the "d" dew indicator on the display flashes on and off (The self test indicator "U10" will also appear in the VCR display.) and all the function buttons are made non-operational to protect the tape and the video heads. When the dew indicator flashes, wait until this indicator disappears.

- If dew forms inside the VCR while the VCR is off, it will turn on automatically and the dew indicator will flash on and off. As soon as the dew disappears, the VCR will turn itself off again.

Dirt on the video heads

If the video heads get dirty, pictures will not be recorded or played back clearly.
(See the following conditions.)

Normal picture → **Small amount of dirt** → **Large amount of dirt**

If this happens, clean the video heads with a commercially available cleaning cassette.
If the problem still persists after performing above, contact a service personnel to request assistance.

Head cleaning by service agents is not covered by warranty.

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY METHOD

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the cabinet parts and the circuit boards in order to find the necessary items for servicing.
When reassembling, perform the steps in the reverse order.

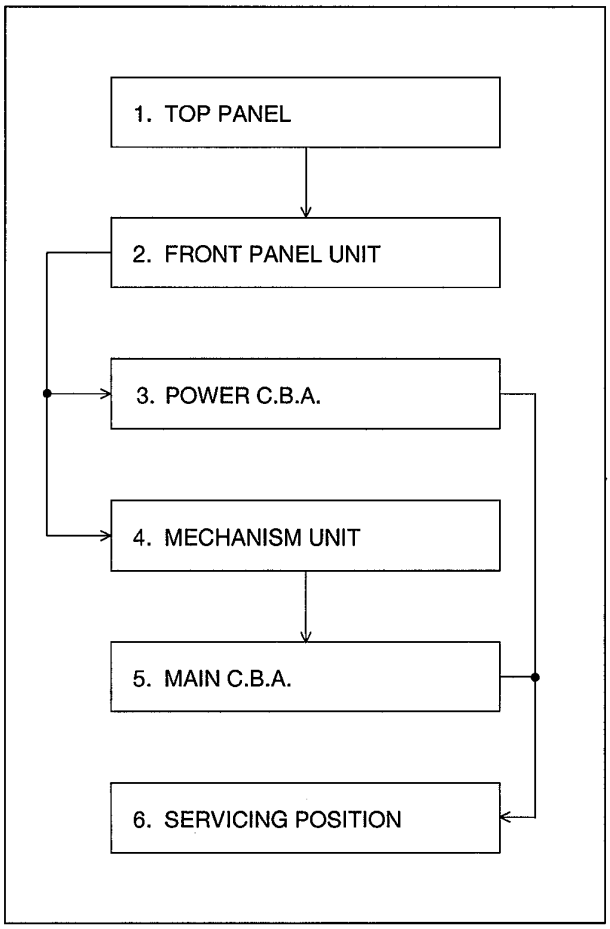


Fig. D1

2-1-2. DETAIL OF DISASSEMBLY METHOD

1. REMOVAL OF THE TOP PANEL

Remove..... 2 Screws (A)

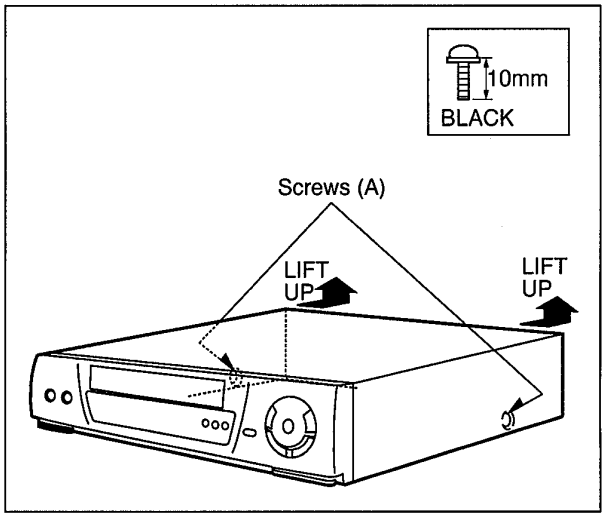


Fig. D2

2. REMOVAL OF THE FRONT PANEL UNIT

Unlock ..... 7 Tabs (B)

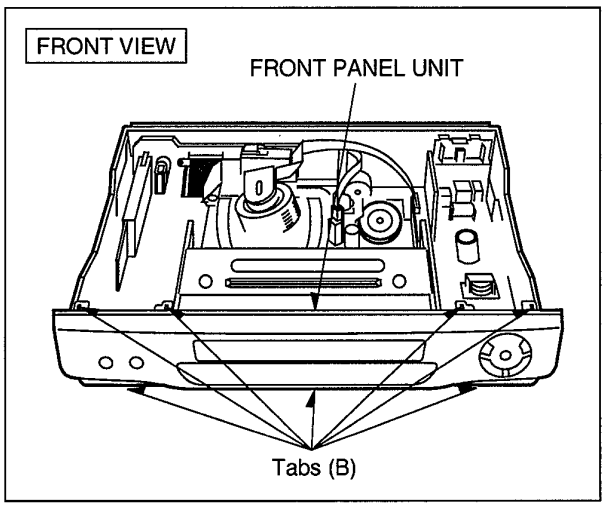


Fig. D3

3. REMOVAL OF THE POWER C.B.A.

Disconnect.....Bridge Connector (C)
Unlock..... 6 Tabs (D)

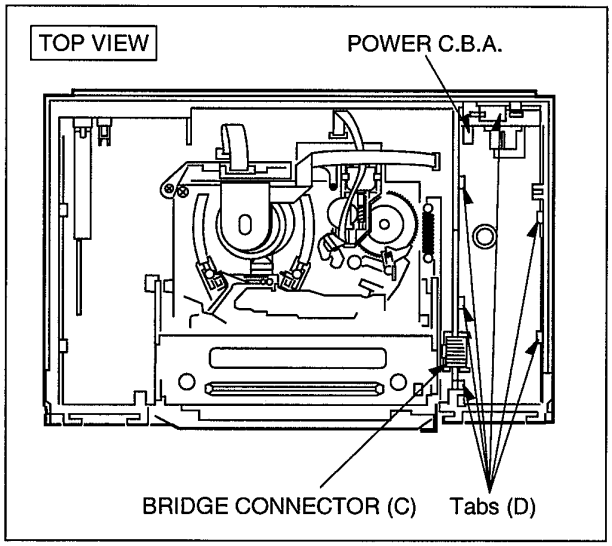


Fig. D4

4. REMOVAL OF THE MECHANISM UNIT

Remove ..... 3 Screws (E)
Remove ..... 2 Screws (F)

Note: Keep pressing 2 stoppers on Cassette Holder Plate and Press Cassette Holder Plate to the rear.

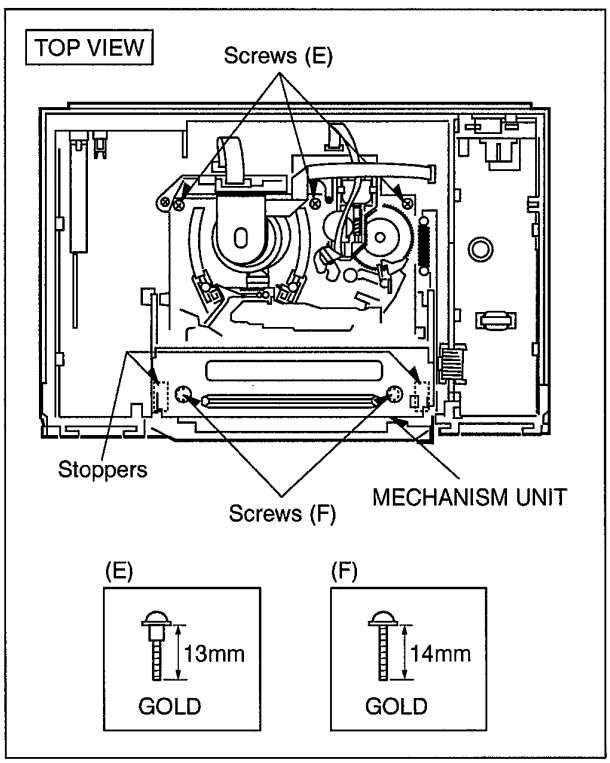


Fig. D5

5. REMOVAL OF THE MAIN C.B.A.

Disconnect.... Bridge Connector (C)
Remove ..... Screw (G)
Unlock..... 7 Tabs (H)

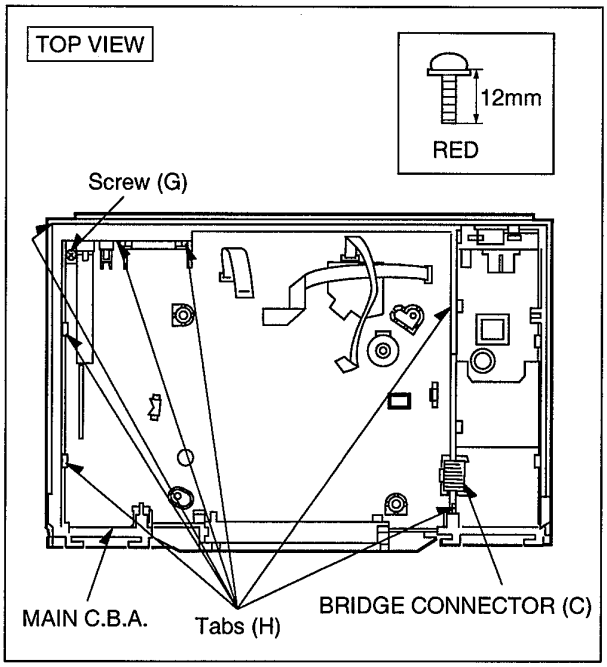


Fig. D6

6. SERVICING POSITION

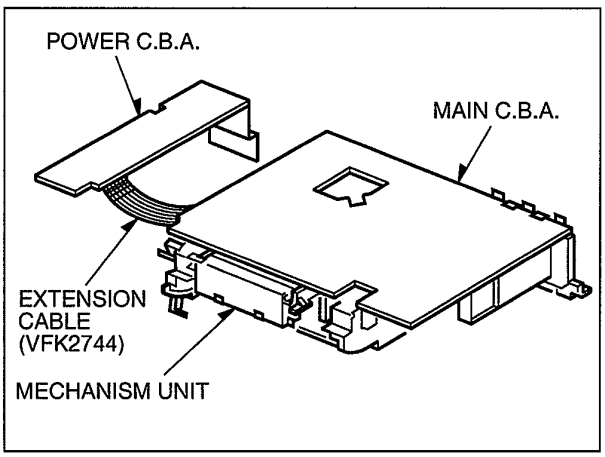


Fig. D7

2-2. MECHANICAL ADJUSTMENT PROCEDURES

Refer to the Service Manual for Z Mechanical Chassis. (Order No. VRD9802005C2)

2-3. ELECTRICAL ADJUSTMENT PROCEDURES

PG SHIFTER ADJUSTMENT (AUTOMATIC)

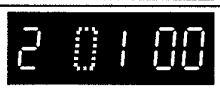
PROCEDURES	FIP Display
Press the FF and EJECT keys simultaneously for 3 seconds.	
Press the FF and EJECT keys simultaneously twice.	
Press the EJECT key for 3 seconds.	
Insert the Alignment Tape. (PAL: VFJ8125H3F) (NTSC: VFM8080HQFP)	
This adjustment is automatically started. (During the adjustment, the picture will be appeared on the monitor.)	
When this Adjustment is terminated, the following operation will be activated. ● Adjustment completed : The tape will be ejected. ● Adjustment incompleted : "F2 ✻" is indicated on the FIP. Check the Servo/System Control circuit and Cylinder Unit.	
To release Service Mode, press FF and EJECT keys simultaneously 6 times until the normal indication on the FIP.	

Fig. E1

Note:
Perform this adjustment after proceeding the following services:

* Replacing the MICROPROCESSOR and/or Back-up Battery.
* Replacing the CYLINDER UNIT or UPPER CYLINDER.
* Adjusting or replacing which is related with the Interchangeabilities.

Memo

SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. ABBREVIATIONS

443NT [L]	4.43 NTSC Ⓛ	BIL	BILINGUAL
A. COMP	AUDIO COMPONENT SIGNAL	BIL [L]	BILINGUAL Ⓛ
A. COMPO	AUDIO COMPONENT SIGNAL	BIL. [H]	BILINGUAL Ⓗ
A. D.P [L]	AUDIO DUBBING PAUSE Ⓛ	BIL/M1 [L]	BILINGUAL Ⓛ
A. D/L [L]	AUDIO DUBBING PAUSE Ⓛ	BS CLOCK	BS CLOCK
A. DEF [S]	AUDIO DEFEAT	BS DATA	BS DATA
A. DEF [S] [L]	AUDIO DEFEAT	BS LCH IN	BS L CHANNEL INPUT
A. DUB P [L]	AUDIO DUBBING PAUSE Ⓛ	BS MIX [H]	BS MIX Ⓗ
A. DUB [H]	AUDIO DUBBING Ⓗ	BS MON [H]	BS MONITOR Ⓗ
A. ERASE	AUDIO ERASE	BS MONI [H]	BS MONITOR Ⓗ
A. H. SW	AUDIO HEAD SWITCHING PULSE	BS RCH IN	BS R CHANNEL INPUT
A. HEAD [R]	AUDIO HEAD (REC)	BS VIDEO	BS VIDEO SIGNAL
A. HEAD [W]	AUDIO HEAD (PLAY)	BS VIDEO/BS1	BS VIDEO SIGNAL
A. IN [L]	AUDIO INPUT (L)	BS [H]	BS Ⓗ
A. IN [R]	AUDIO INPUT (R)	BS. LEVEL	BS LEVEL
A. MUT [H]	AUDIO MUTE Ⓗ	BS. M [H]	BS MONITOR Ⓗ
A. MUTE [H]	AUDIO MUTE Ⓗ	BS/VTR [H]	BS/VTR Ⓗ
A. OUT [L]	AUDIO OUTPUT (L)	BUS CLK	BUS CLOCK
A. OUT [R]	AUDIO OUTPUT (R)	BUS LSN	BUS LISTEN
A. RF OUT	AUDIO RF SIGNAL OUTPUT	BUS TLK	BUS TALK
A/VS/S. DATA	AV SW/SERIAL DATA	BUZZER	BUZZER
AC ONLINE	AC ONLINE	CAP EC	CAPSTAN TORQUE CONTROL
AC. O/EE. H	AC ONLINE/EE Ⓗ	CAP M GND	CAPSTAN MOTOR GND
AFC S C	AFC S CURVE	CAP. ET	CAPSTAN TORQUE CONTROL
AFC [S]	AFC S CURVE	CAP. FG1	CAPSTAN FG1 PULSE
AFC. DEF	AFC DEFEAT	CAP. FG2	CAPSTAN FG2 PULSE
ARFC OUT	AUDIO RF SIGNAL OUTPUT	CAS. SW	CASSETTE SW
ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL	CCN	PLAYBACK CONTROL SIGNAL (−)
ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI	CCP	PLAYBACK CONTROL SIGNAL (+)
		CHM	CONTROL SIGNAL (+)
ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL Ⓗ/NORMAL	CHP	CONTROL SIGNAL (−)
		CINEM [L]	CINEMA Ⓛ
AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL	CINEMA [L]	CINEMA Ⓛ
ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE	CINEMA/MIX	CINEMA/MIX
AUDIO IN [L]	AUDIO INPUT (L)	CKL	RATCH LOCK
AUDIO IN [R]	AUDIO INPUT (R)	CKS	SHIFT LOCK
AUDIO OUT [L]	AUDIO OUTPUT (L)	CL	CLOCK
AUDIO OUT [R]	AUDIO OUTPUT (R)	CLK	CLOCK
AUDIO SELECT [H]	AUDIO SELECT Ⓗ	CLK (C.G)	CLOCK
AUDIO. L	AUDIO (L)	CLOCK. IN	CLOCK INPUT
AUDIO. R	AUDIO (R)	CLP	CLAMP
AV CNT	AV CONTROL	COL/B/W/NOR	COLOUR/BLACK & WHITE/NORMAL
AV CTL	AV CONTROL	COLOR [H]	COLOUR Ⓗ
AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK	CONV	CONVERTOR
AV. C.M.	AV CONTROL MODE	CS	CHIP SELECT
AVCNT/METER. R	AV CONTROL/LEVEL METER (R)	CTL GND	CONTROL GND
AVSW/METER. L	AV SW/LEVEL METER (L)	CTL HEAD [+]	CONTROL HEAD (+)
B MODE. H	B MODE Ⓗ	CTL HEAD [−]	CONTROL HEAD (−)
B.G.P	BURST GATE PULSE	CTL [+]	CONTROL HEAD (+)
BACKUP 5V	BACK UP 5V	CTL [−]	CONTROL HEAD (−)
BAND. U.E.	BAND U	CUE BIAS	CUE BIAS
BANDVL. D	BAND VL	CURRENT LIM	CURRENT LIMMITER
BI/MI [L]	BILINGUAL/MIX Ⓛ	CYL ET	CYLINDER TORQUE CONTROL

CYL GND	CYLINDER GND	FULL. E. 12V	FULL ERASE 12V
D.F.M. REC [H]	DELAIED FM RECORDING Ⓗ	GND [A]	GND (ANALOG)
D. FM REC [L]	DELAIED FM RECORDING Ⓛ	GND [TU]	GND (TUNER)
D. GND	DIGITAL GND	GND/N. SW. 12V	GND/NON SW 12V
D. REC [H]	DELAYED RECORDING Ⓗ	H. SYNC	HORIZONTAL SYNC
D4/S. LED	D4/STILL LED	H. AMP. SW	HEAD AMP SW PULSE
D4/STILLED	D4/STILL LED	H. P <R>	HEAD PHONE (R)
DAC [CLK]	TUNER DAC (CLOCK)	H. P <L>	HEAD PHONE (L)
DAC/FSCS	TUNER DAC/FS CHIP SELECT	H. P GND	HEAD PHONE GND
DAREC [H]	DELAYED AUDIO RECORDING Ⓗ	H. P OUT [L]	HEAD PHONE OUTPUT (L)
DATA	DATA	H. P OUT [R]	HEAD PHONE OUTPUT (R)
DECODER [L]	DECODER (L)	H. SW	HEAD SW PULSE
DECODER [R]	DECODER (R)	HEAD PHONE [L]	HEAD PHONE (L)
DEW	DEW	HEAD PHONE [R]	HEAD PHONE (R)
DEW SNS	DEW SENSOR	HEAD SW	HEAD SW
DFMRE [H]	DELAYED FM AUDIO RECORDING Ⓗ	HEATER [+]	HEATER (+)
E. REC 5V	EXCEPT RECORDING 5V	HEATER [−]	HEATER (−)
EC	ERROR TORQUE CONTROL	HSS	HORIZONTAL SYNC SIGNAL
ECR	ERROR TORQUE CONTROL	HTR [+]	HEATER (+)
	REFERENCE VOLTAGE	HTR [−]	HEATER (−)
EDT TRIG [L]	EDIT TRIGGER Ⓛ	I RFE	REFERENCE CURRENT
EDIT [H]	EDIT Ⓗ	ICL	CONTROL AGC CIRCUIT
EE [H]	EE Ⓗ	IF	INTERMEDIATE FREQUENCY
EE [H]/INS [M]	EE Ⓗ/INSERT Ⓜ	IN SELA1	INPUT SELECT A1 POSITION
EE. VV. TR	EE/VV/TRICK PLAY	IN SELA2	INPUT SELECT A2 POSITION
EJECT. PO	EJECT POSITION	IN SELA3	INPUT SELECT A3 POSITION
EJECT/VDET	EJECT/REVERSE SLOW LOCK	INS L/R [L]	INSERT Lch/Rch Ⓛ
ENV. SEL	ENVELOPE SELECT	INS. [H]	INSERT Ⓗ
ENVE. OUT	ENVELOPE OUTPUT	INSEL A1	INPUT SELECT A1 POSITION
ENVE. SEL	ENVELOPE SELECT	INSEL A2	INPUT SELECT A2 POSITION
ENV SELECT	ENVELOPE SELECT	INSERT	INSERT
EP [H]	LP Ⓗ	INSERT [H]	INSERT Ⓗ
EP/LP [H]	LP Ⓗ	IO CS	INPUT/OUTPUT CHIP SELECT
EP/LP/SP	LP/SP	JOG1	JOG1
EP/SS [H]	LP/SLOW/STILL/STOP Ⓗ	JOG S3 LED/FOWRD	JOG LED/FORWARD LED
EPROMCS	EPROM CHIP SELECT	JOG/F. LED	JOG LED/FORWARD LED
EX. REC 5V	EXCEPT RECORDING 5V	JSB [H]	JSB Ⓗ
FF/REW [L]	FIRST FORWARD/REWIND Ⓛ	JST. CLCK	JUST CLOCK
FG1 IN	FG1 PULSE INPUT	JST. CLK	JUST CLOCK
FG2 IN	FG2 PULSE INPUT	JST. CLOCK	JUST CLOCK
FILTER ADJUSTMENT	FILTER ADJUSTMENT	L. OUT	Lch OUTPUT
FLY ERASE [H]	FLYING ERASE HEAD ON Ⓗ	L. CH [H]	Lch Ⓗ
FLY ON [H]	FLYING ERASE HEAD ON Ⓗ	L. CH [L]	Lch Ⓛ
FLY. E [H]	FLYING ERASE HEAD ON Ⓗ	LED (MAIN)	LED (MAIN)
FM MUT [H]	FM AUDIO MUTE Ⓗ	LED (STEREO)	LED (STEREO)
FM MUTE [H]	FM AUDIO MUTE Ⓗ	LED (SUB)	LED (SUB)
FM OUT [L]	FM OUTPUT (L)	LED CKL	LED SERIAL CLOCK
FM OUT [R]	FM OUTPUT (R)	LED CKS	LED SERIAL CLOCK
FM PACK OUT [L]	FM PACK OUTPUT (L)	LED DATA	LED SERIAL DATA
FM PACK OUT [R]	FM PACK OUTPUT (R)	LINE IN 1 [L]	LINE INPUT 1 (L)
FM/BS SEL [L]	FM/BS SELECT (L)	LINE IN 1 [R]	LINE INPUT 1 (R)
FM/BS SEL [R]	FM/BS SELECT (R)	LINE IN 2 [L]	LINE INPUT 2 (L)
FS. CLK	FS CLOCK	LINE IN 2 [R]	LINE INPUT 2 (R)
FUL. E [H]	FULL ERASE HEAD ON Ⓗ	LINE IN V	LINE INPUT VIDEO
FULL. E [H]	FULL ERASE HEAD ON Ⓗ	LINE IN [L]	LINE INPUT (L)

LINE IN [R]	LINE INPUT (R)	P-OFF [H]	POWER OFF Ⓗ
LINE OUT [L]	LINE OUTPUT (L)	P-OFF [L]	POWER OFF Ⓛ
LINE OUT [R]	LINE OUTPUT (R)	P. FAIL	POWER FAILURE DETECT
LP [H]	LP Ⓗ	P. OFF [H]	POWER OFF Ⓗ
LPTRI [L]	LP TRICK PLAY Ⓛ	P. OFF [L]	POWER OFF Ⓛ
Lch/A. DUB	Lch/AUDIO DUBBING	PAL [H]	PAL Ⓗ
M GND	MOTOR GND	PAL [L]/NTSC [H]	PAL Ⓛ/NTSC Ⓗ
M REG	MOTOR REGULATOR	PB ADJ OUT	PLAYBACK ADJUST OUTPUT
MAIN OUT	MAIN OUTPUT	PB OUT	PLAYBACK OUTPUT
MAIN [L]	MAIN Ⓛ	PB. H	PLAYBACK Ⓗ
MAIN/MONO	MAIN/MONAURAL	PFG	PG/FG
MAX IN	MAXIMAM INPUT	PHOTSN +B	PHOTO SENSOR +B
MES [H]	MESECAM Ⓗ	PICT. CNT	PICTURE CONTROL
MESE [H]	MESECAM Ⓗ	PLAY LED/RVS LED	PLAY LED/REVERSE LED
MESE [L]	MESECAM Ⓛ	PLAY. PO	PLAY POSITION
METER 5V	LEVEL METER 5V	PLAY/R. LED	PLAY LED/REVERSE LED
METER [L]	LEVEL METER (L)	PLY/DEW	PLAY/DEW Ⓗ
METER [R]	LEVEL METER (R)	POWER OFF [L]	POWER OFF Ⓛ
METER. L/AVS	LEVEL METER (L)	PREROLL [H]	PREROLL Ⓗ
METER. R/AVC	LEVEL METER (R)	PWRFAIL	POWER FAILURE DETECT
MI/BI [L]	MIX Ⓗ/BILIGUAL	R. CH [H]	Rch Ⓗ
MIC GND	MIC GND	R. CH [L]	Rch Ⓛ
MIC IN	MIC INPUT	R. ST	RESET
MIC IN [L]	MIC INPUT (L)	R/S/F	REVERSE Ⓗ/STOP Ⓜ/FORWARD Ⓛ
MIC IN [R]	MIC INPUT (R)	RCH [H]	Rch Ⓗ
MIC [H]	MIC Ⓗ	REC 12V	RECORDING 12V
MIX [H]	MIX Ⓗ	REC CHROMA	RECORDING CHROMINANCE SIGNAL
MIX [H]/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ	REC H	RECORDING Ⓗ
MIX/CINE	MIX Ⓗ/CINEMA SOUND Ⓛ	REC IN	RECORDING INPUT
MIX/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ	REC OUT [L]	RECORDING OUTPUT Ⓛ
MN. H/M. L	MONAURAL Ⓗ/MAIN Ⓛ	REC START	RECORDING START
MN. H/MAI. L	MONAURAL Ⓗ/MAIN Ⓛ	REC VR [C]	RECORDING VOLUME (COMMON)
MN2/MES. L	MONAURAL 2/MESECAM Ⓛ	REC VR [L]	RECORDING VOLUME (L)
MODE SEL	AUDIO MODE SELECT	REC VR [R]	RECORDING VOLUME (R)
MODE SW	AUDIO MODE SW	REC Y	RECORDING LUMINANCE SIGNAL
MODE. S. IN	AUDIO MODE SELECT INPUT	REC [H]	RECORDING Ⓗ
MODE. S. OUT	AUDIO MODE SELECT OUTPUT	REC. C	RECORDING CHROMINANCE SIGNAL
MONO [H]	MONAURAL Ⓗ	REC. Y	RECORDING LUMINANCE SIGNAL
MONO [H]/MAIN [L]	MONAURAL Ⓗ/MAIN Ⓛ	REC/EE CTL	RECORDING/EE CONTROL
MONO2 [L]	MONAURAL 2	REEL-T	REEL PULSE (TAKE-UP)
MONO2/MESE [FM(L)]	MONAURAL 2/MESECAM (FM Ⓛ)	REEL-S	REEL PULSE (SUPPLY)
MOTOR GND	MOTOR GND	REGULATOR FILTER	REGULATOR FILTER
MUTE	MUTE	RESET	RESET
N. A. REC [L]	NORMAL AUDIO RECORDING	REV M F/R	REVIEW MOTOR
N. SW 12V	NON SW 12V		FORWARD/REVERSE
N. SW. 5. DET	NON SW 5V DETECT	REV M V1	REVIEW MOTOR V1
NICAM	NICAM	REV M V2	REVIEW MOTOR V2
NICAM [L]	NICAM Ⓛ	REV MOTOR F/R	REVIEW MOTOR
NOL [H]	PAL Ⓗ/4.43 NTSC Ⓜ/3.58 NTSC Ⓛ		FORWARD/REVERSE
NOR/SOFT [H]	NORMAL/SOFT TAPE PLAY Ⓗ	REV MOTOR V1	REVIEW MOTOR V1
NORMAL [H]	NORMAL Ⓗ	REV MOTOR V2	REVIEW MOTOR V2
NR BIAS	NR BIAS	REV MOTOR [+]	REVIEW MOTOR (+)
NTSC [L]	NTSC Ⓛ	REV MOTOR [−]	REVIEW MOTOR (−)
OCH	CONTROL AGC CIRCUIT	REV. M. GND	REVIEW MOTOR GND
OUT	OUTPUT	RF. CHROMA	RF CHROMINANCE SIGNAL

RF OUT	RF OUTPUT	SYSCON 5V	SYSTEM CONTROL 5V
RF Y	RF LUMINANCE SIGNAL	SYSTEM	SYSTEM SW
RF. Y. IN	RF LUMINANCE SIGNAL INPUT	T-PHOTO	TAKE-UP PHOTO TRANSISTOR
RF. Y. OUT	RF LUMINANCE SIGNAL OUTPUT	T-RL. PLS	TAKE-UP REEL PULSE
ROTAR. SW	ROTARY SW	T. BUSCLK	TIMER BUS CLOCK
ROTARY	ROTARY SW	T. BUSLSN	TIMER BUS LISTEN
RST	RESET	T. BUSTLK	TIMER BUS TALK
RST [L]	RESET Ⓛ	T. END [L]	TAPE END Ⓛ
Rch/INST	Rch/INSERT	T. PHOTO	TAKE-UP PHOTO TRANSISTOR
S IN	SERIAL DATA INPUT	TAPE END [L]	TAPE END Ⓛ
S OUT	SERIAL DATA OUTPUT	TAPE END [L]/CAM	TAPE END Ⓛ/CAMERA PAUSE
S-PHOTO	SUPPLY PHOTO TRANSISTOR	TEST	TEST MODE
S-RL. PLS	SUPPLY REEL PULSE	TPZ	TRAPEZOIDAL WAVE CIRCUIT
S. CLK	SERIAL CLOCK	TRIC [L]	TRIC PLAY Ⓛ
S. CLK/AV	SERIAL CLOCK/AV	TRICK [L]	TRIC PLAY Ⓛ
S. DATA	SERIAL DATA	TRK. ENV	AUTO TRACKING ENVELOPE DETECT
S. DATA/A	SERIAL DATA	TU. AUDIO	TUNER AUDIO
S. PHOTO	SUPPLY PHOTO TRANSISTOR	TU. GND	TUNER GND
S. TAB [L]	SAFETY TAB SW ON Ⓛ	TU. V. IN	TUNER VIDEO SIGNAL INPUT
S/P/N	SECAM/PAL/NTSC	TU. VIDEO	TUNER VIDEO
SC IN	SERIAL CLOCK INPUT	TUN NOR IN	TUNER NORMAL INPUT
SC OUT	SERIAL CLOCK OUTPUT	TUN R	TUNER AUDIO (R)
SCK SELECT	SERIAL CLOCK SELECT	TUN. AUDIO IN	TUNER AUDIO INPUT
SEL OUT [L]	SELECT OUTPUT (L)	TUNER 12V	TUNER 12V
SEL OUT [R]	SELECT OUTPUT (R)	TUNER L	TUNER AUDIO (L)
SHUTTLE 1	SHUTTLE 1	TUNER V IN	TUNER VIDEO SIGNAL INPUT
SIF	SOUND INTERMEDIATE FREQUENCY	TUNER [L]	TUNER AUDIO (L)
SLMUT [H]	INPUT SELECT MUTE Ⓗ	TUNER [N]	TUNER AUDIO (NORMAL)
SLNID [+]	SOLENOID (+)	TUNER [R]	TUNER AUDIO (R)
SLNID [−]	SOLENOID (−)	TUNER. 12	TUNER 12V
SLW TR. MM	SLOW TRACKING MONO MULTI	TUOFF [H]	TUNER OFF Ⓗ
SLW TR. REF	SLOW TRACKING REFERENCE VOLTAGE	TV. AUDIO	TV AUDIO
		TV/VTR	TV/VTR
SNS. GND	SENSOR GND	TXTON [L]	TEXT ON Ⓛ
SOFT [H]	SOFT TAPE PLAY Ⓗ	U. REG45V	UNREGULATOR 45V
SOFT [H]/NORMAL	SOFT TAPE PLAY Ⓗ/NORMAL Ⓗ	UNREG	UNREGULATOR
SOLENOID ON [L]	SOLENOID ON Ⓛ	UNREG19V	UNREGULATOR 19V
SP [H]	SP Ⓗ	V. REF	REFERENCE VOLTAGE
SP/L/SLP	SP/LP	V. EE [H]	VIDEO EE Ⓗ
SSS [L]	SLOW/STILL/STOP	V. EE [L]	VIDEO EE Ⓛ
STEREO LED	STEREO LED	VCO REF	REFERENCE OSCILLATER
STEREO [H]	STEREO Ⓗ	VD. IN	VIDEO SIGNAL INPUT
STEREO [L]	STEREO Ⓛ	VD. OUT	VIDEO SIGNAL OUTPUT
STOP. PO	STOP POSITION	VIDEO EE [L]	VIDEO EE Ⓛ
STOP/5V	STOP POSITION/5V	VIDEO IN	VIDEO SIGNAL INPUT
STOP1/TAPE SEL	STOP1 POSITION/TAPE SELECT	VIDEO OUT	VIDEO SIGNAL OUTPUT
STOP1/PAL:ST	STOP1 POSITION/PAL	VM	MOTOR VOLTAGE
STOP2. PO	STOP 2 POSITION	VM DOWN [L]	MOTOR VOLTAGE DOWN Ⓛ
STOP2/S-TAB	STOP 2 POSITION/SAFETY TAB SW	VSS	VERTICAL SYNC SIGNAL
STREO [H]	STEREO Ⓗ	VTR [H]	VTR Ⓗ
SUB BIAS	SUB BIAS	VTR. 12V	VTR 12V
SUB. SW	SUB SW	X IN	OSCILLATOR INPUT
SVHS CAS [L]	S-VHS CASSETTE Ⓛ	X OUT	OSCILLATOR OUTPUT
SW. 5. DET	SW 5V DETECT		
SYNC [L]	SYNC Ⓛ		

INPUT/OUTPUT CHART FOR IC6007

Pin Number	Input/Output	Port Name	Function
1	I	P.FAIL.IN(L)	Power failure detection input.
2	——	GND	GND
3	I	S.REEL.PULSE	Supply reel pulse input.
4	I	T.REEL.PULSE	Take-up reel pulse input.
5	I	REMOCON IN	Remote Controller pulse input.
6	O	P.FAIL.OUT(L)	Power failure detection output.
7	——	GND	GND
8	I	MEM CS	EEPROM chip selection.
9	O	EE(L)/VV(H)	EE:Low VV:High
10	O	FL DRV CS	FIP driver chip selection.
11	O	TUN SEARCH(H)	This port is high during tuner search.
12	O	VTR(H)/TV(L)	VTR/TV mode switching control.
13	O	CH H/L	Channel switching control.
14	O	IC.CLK	FIP driver serial clock output.
15	I	IC.LSN	FIP driver serial data input.
16	O	IC.TLK	FIP driver serial data output.
17	I/O	IIC.TALK/LSN	IIC serial data in/output
18	O	IIC.CLK	IIC serial clock output
19	——	GND	GND
20	O	HALF WAVE(H)	Capstan torque switching control. 1. FF/REW Mode Capstan rotation speed is 1300 rpm or more without VHS-C cassette:High Capstan rotation speed is less than 1300 rpm without VHS-C cassette:High impedance VHS-C cassette:High imedance 2. Except FF/REW Mode:High impedance
21	O	CURRENT LIMIT	Capstan motor current limitter output.
22	O	CAP R/F	Capstan rotation direction control. Reverse : High Forward : Low
23	O	VIDEO H.SW	Video head switching signal output.

Fig. MP1

INPUT/OUTPUT CHART FOR IC6007

Pin Number	Input/Output	Port Name	Function
24	O	ART V/H/N	This port supplies artificial vertical sync signal to stabilize the picture in special playback mode.
25	I	RESET(L)	This port is low during reset.
26	O	D.A.REC(H)	Audio signal recording on/off control.
27	O	D.REC(H)	Video signal recording on/off control.
28	O	CUR. EMPH(H)	This port supplies high during a certain time from starting the recording. REC MODE / OUTPUT TIMING / REC MODE / OUTPUT TIMING NTSC 2H / 6 sec / PAL 3H / 9 sec NTSC 4H / 12 sec / --- / --- NTSC 6H / 18 sec / PAL 6H / 18 sec
29	O	128Hz	Oscillator output for main clock adjustment.
30	O	FULL ERASE(L)	Full erase on/off control. ON:Low OFF:High
31	O	BIAS(L)	Audio signal recording on/off control.
32	I	S.TAB(L)	This port receives low while the cassette tape with safety tab is inserted.
33	O	CAP ET	Capstan torque control.
34	O	CYL ET	Cylinder torque control.
35	——	GND	GND
36	——	VDD	Digital 5V
37	O	14.32MHz OUT	Oscillator output.
38	I	14.32MHz IN	Oscillator input.
39	——	GND	GND
40	I	32KHz IN	Oscillator input.
41	O	32KHz OUT	Oscillator output.
42	I	CLK SLCT	Digital 5V
43	——	GND	GND
44	——	GND	GND
45	——	GND	GND
46	——	GND	GND
47	O	CVOUT	Composite video signal output.
48	——	GND	GND
49	I	CVIN	Composite video signal input.

Fig. MP2

INPUT/OUTPUT CHART FOR IC6007

Pin Number	Input/Output	Port Name	Function
50	I	CVIN2	Composite video signal input.
51	——	+5V	+5V
52	O	AFCC	AFC low pass filter output.
53	I	AFCLPF	AFC low pass filter input.
54	O	FSC	4 muliply low pass filter output.
55	I	FSCLPF	4 muliply low pass filter input.
56	O	SP(L)	This port supplies low during SP mode.
57	——	GND	GND
58	O	CHARA+HEM	OSD digital data output.
59	O	I/DK/BG	PAL-I:High PAL-BGDKI:Low
60	O	CHARA	OSD digital data output.
61	O	AVPB(H)	This port supplies high during OSD MENU mode and VV mode.
62	O	AUDIO MUTE(H)	Audio mute control output.
63	——	GND	GND
64	——	GND	GND
65	I	CYL PFG	Cylinder PFG input.
66	——	GND	GND
67	O	CAP FG OUT	Capstan FG output.
68	I	CAP FG	Capstan FG input.
69	O	OREF	Op amp output for 1/2 VDD reference.
70	I	IREF	Op amp input for 1/2 VDD reference.
71	——	GND	GND
72	I	CTL AMP REF	Control amp reference input.
73	——	+5V	+5V
74	I/O	CTL HEAD(+)	Control signal (+) input.
75	I/O	CTL HEAD(-)	Control signal (-) input.
76	O	PB CTL OUT	Control amp output.
77	I	G SEL	Hardware setting.
78	O	EX FF/REW(L)	This port supplies low during except FF and REW modes.
79	——	GND	GND
80	——	GND	GND
81	——	GND	GND

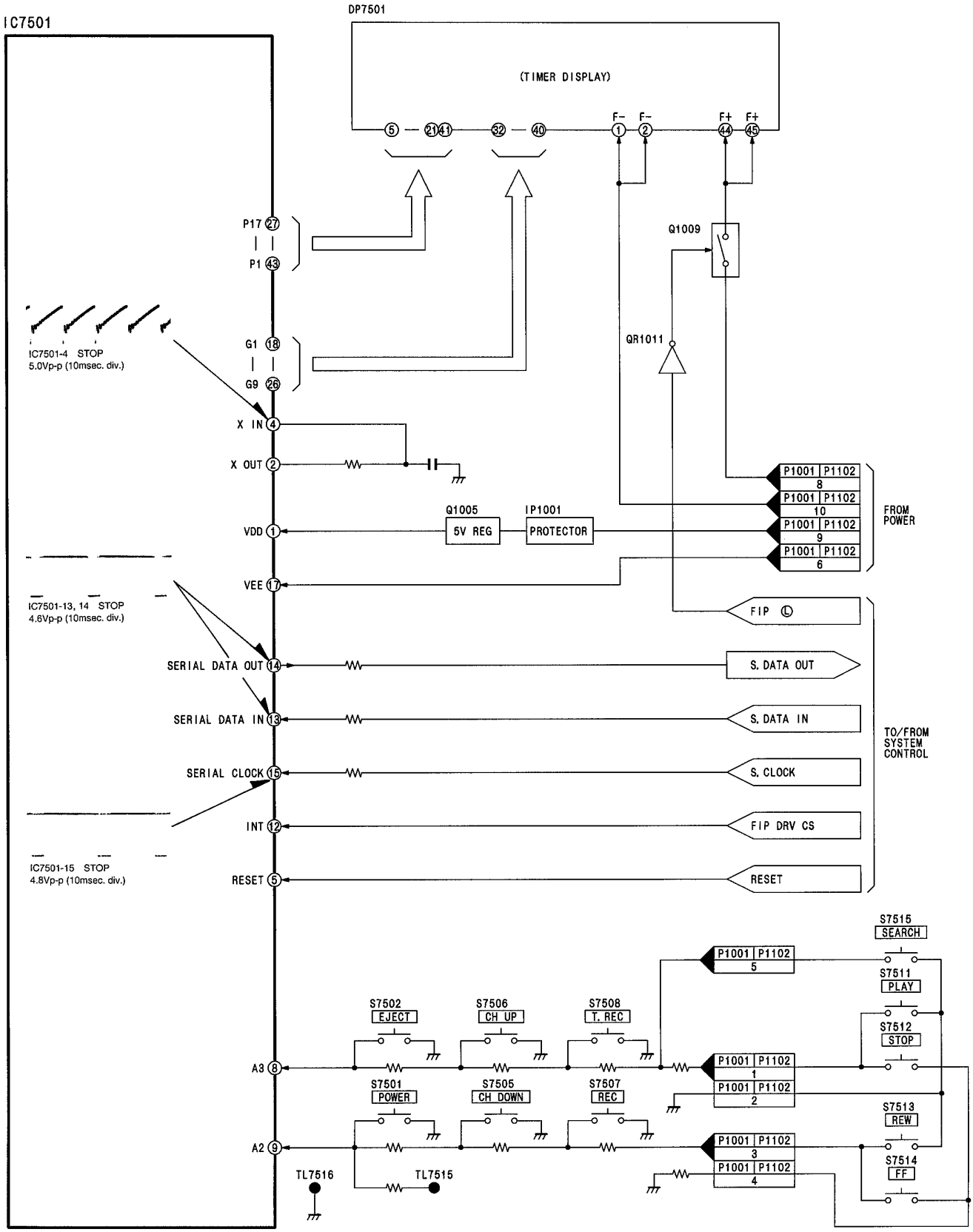
Fig. MP3

INPUT/OUTPUT CHART FOR IC6007

<table>
<tr><th>Pin Number</th><th>Input/Output</th><th>Port Name</th><th>Function</th></tr>
<tr><td>82</td><td>O</td><td>LOAD(H)</td><td>This port supplies high during the mechanism is loaded.</td></tr>
<tr><td>83</td><td>O</td><td>UNLOAD(H)</td><td>This port supplies high during the mechanism is unloaded.</td></tr>
<tr><td>84</td><td>I</td><td>DEW SNS</td><td>Dew detection input.</td></tr>
<tr><td>85</td><td>I</td><td>NORM/SERV/T2/TEST</td><td>Normal/Service/Test2/Test mode selection.
<table>
<tr><th>Input voltage</th><th>Mode</th></tr>
<tr><td>More then 4.0 V</td><td>Normal</td></tr>
<tr><td>2.5V - 4.0V</td><td>Service</td></tr>
<tr><td>1.0V - 2.5V</td><td>Test 2</td></tr>
<tr><td>Less than 1.0V</td><td>Test</td></tr>
</table></td></tr>
<tr><td>86</td><td>I</td><td>T-PHOT</td><td>This port receives 2.4V when Take-up photo sensor detects the tape beginning.</td></tr>
<tr><td>87</td><td>I</td><td>S-PHOT</td><td>This port receives 2.4V when Supply photo sensor detects the tape end.</td></tr>
<tr><td>88</td><td>I</td><td>T.S.CURVE</td><td>Tuner S curve input.</td></tr>
<tr><td>89</td><td>I</td><td>TRACKING ENVE</td><td>Playback envelope input for tracking adjustment.</td></tr>
<tr><td>90</td><td>I</td><td>POS SW1</td><td rowspan="3">
<table>
<tr><th>P.SW 3</th><th>P. SW 2</th><th>P. SW 1</th><th>Position (Mode) Name</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>EJECT</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>CASSETTE DOWN</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>REV, REV SLOW</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>MID (LOADING/UNLOADING)</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>PLAY/REC, STILL/PAUSE, CUE
FWD SLOW, STOP3*1</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>STOP</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>FF/REW</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>INTERMEDIATE</td></tr>
</table>
(*1) The Pinch Roller is on the Capstan motor shaft.</td></tr>
<tr><td>91</td><td>I</td><td>POS SW2</td></tr>
<tr><td>92</td><td>I</td><td>POS SW3</td></tr>
<tr><td>93</td><td>——</td><td>GND</td><td>GND</td></tr>
<tr><td>94</td><td>——</td><td>GND</td><td>GND</td></tr>
<tr><td>95</td><td>O</td><td>POWER SAVE(H)</td><td>FIP on/off control during power off.
FIP off:High
FIP on:Low</td></tr>
<tr><td>96</td><td>O</td><td>POWER OFF(H)</td><td>Power on/off control.</td></tr>
<tr><td>97</td><td>O</td><td>SLOW MODE (H)</td><td>Not Used</td></tr>
<tr><td>98</td><td>O</td><td>ROTARY SW</td><td>Rotary switching signal output.</td></tr>
<tr><td>99</td><td>O</td><td>H.A.SW</td><td>Head amp switching signal output.</td></tr>
<tr><td>100</td><td>I</td><td>ENVE SELECT</td><td>This port receives the playback envelope signal level to select the video head in special playback mode.</td></tr>
</table>

Fig. MP4

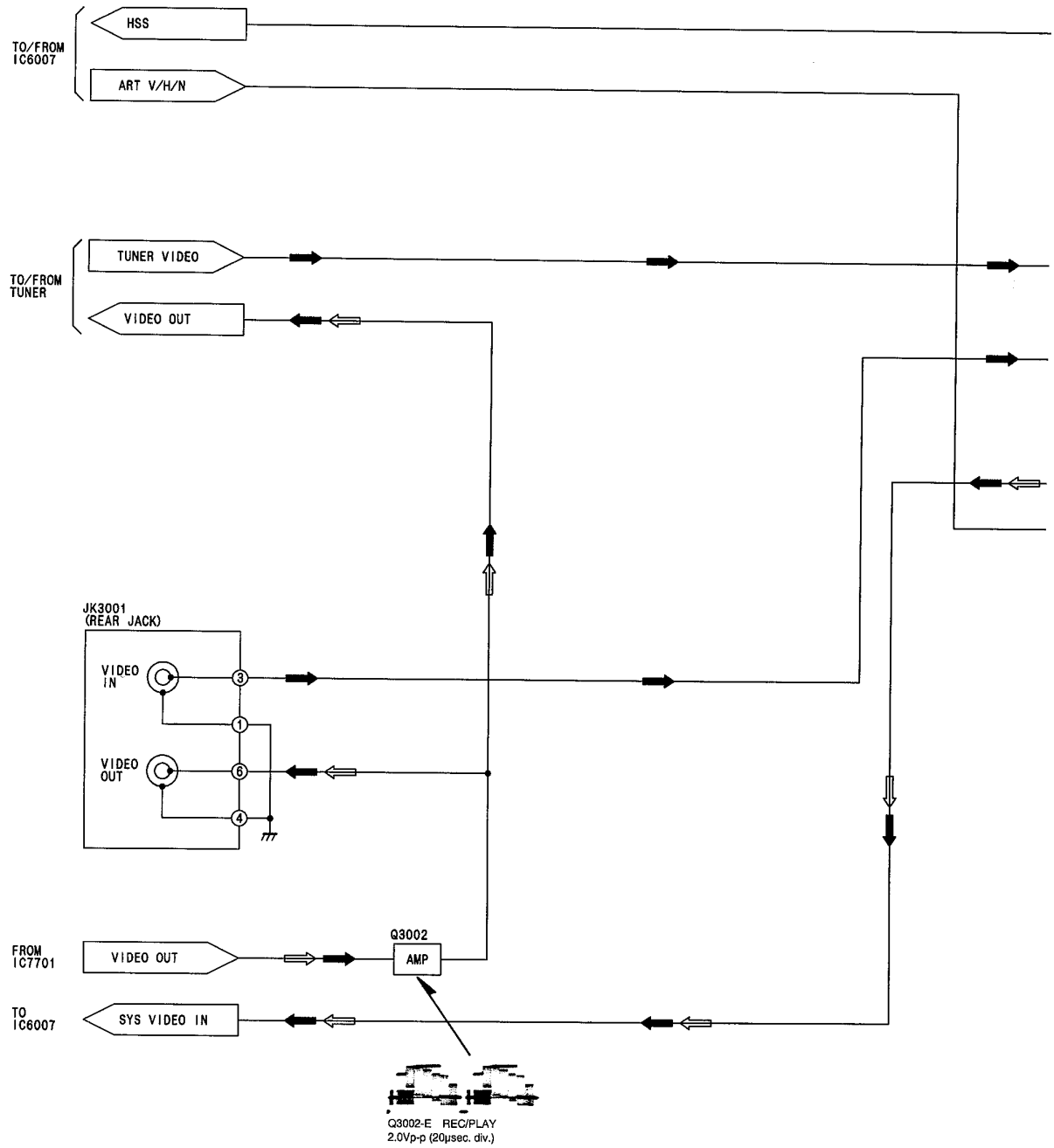
3-2. TIMER BLOCK DIAGRAM

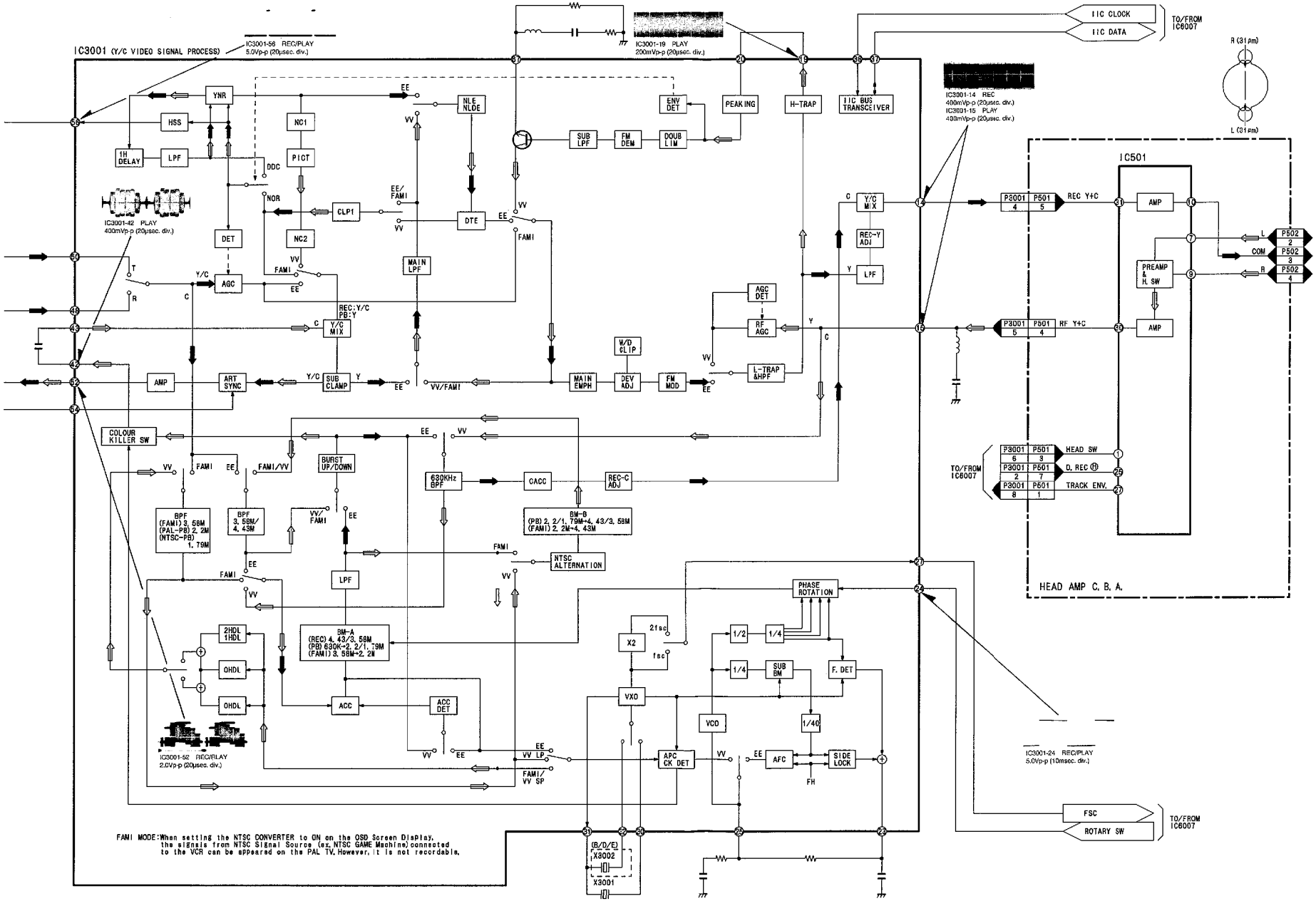


3-3. LUMINANCE & CHROMINANCE BLOCK DIAGRAM

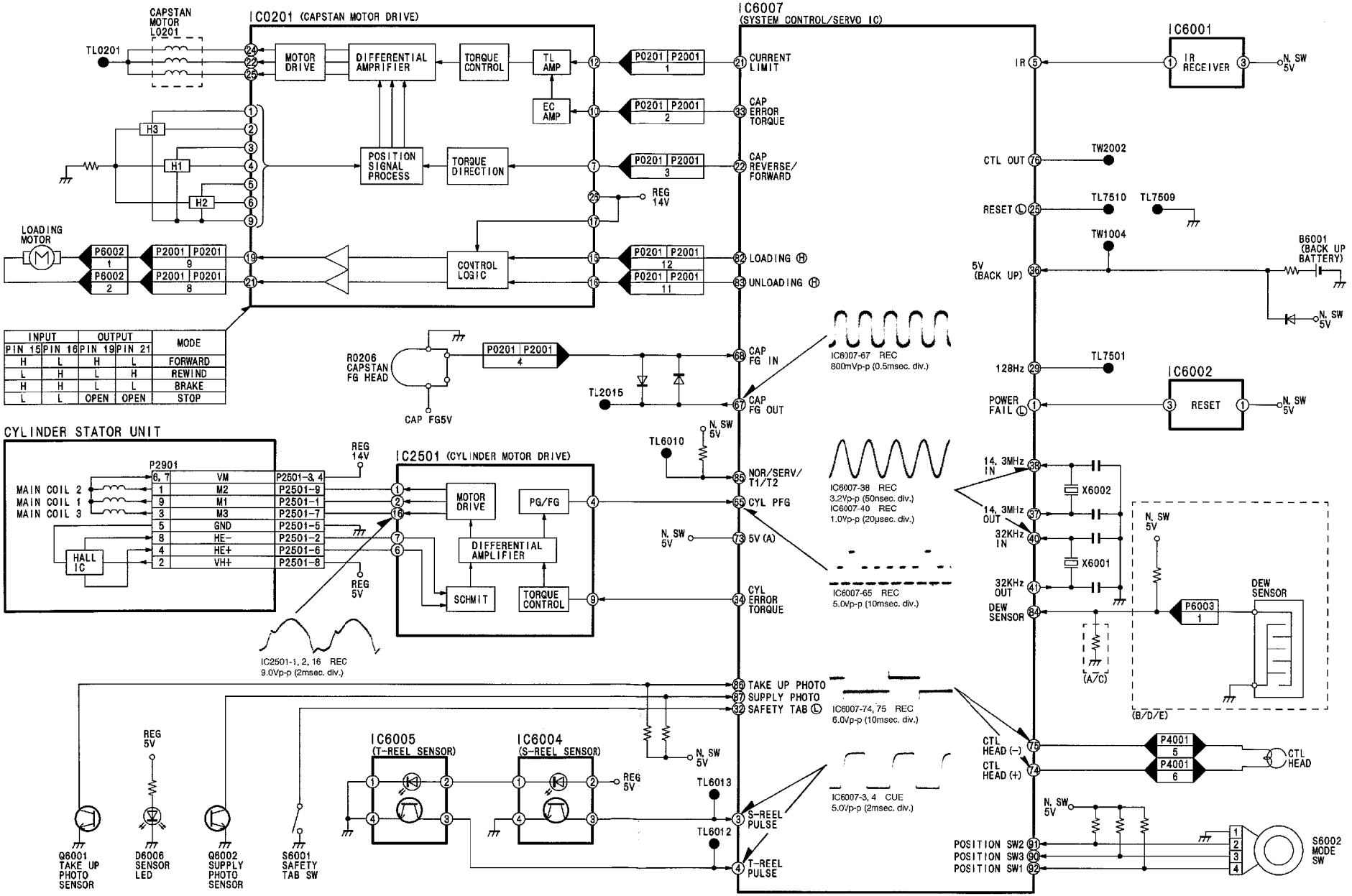
MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE

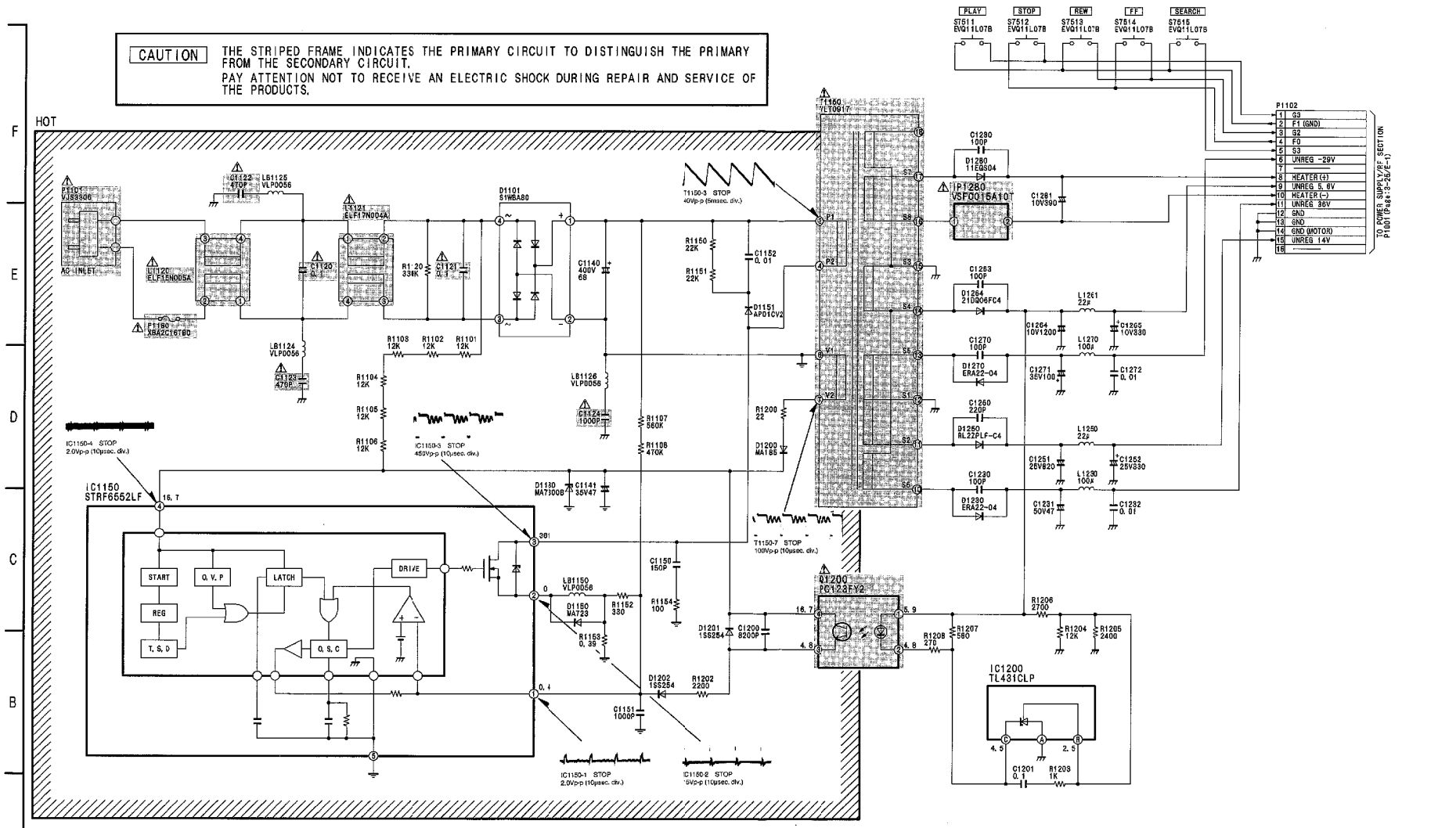



IC3001 (Y/C VIDEO SIGNAL PROCESS)
IC3001-56 REC/PLAY 5.0Vp-p (20μsec. div.)
IC3001-19 PLAY 200mVp-p (20μsec. div.)
IIC CLOCK
IIC DATA
TO/FROM IC6007
IC3001-14 REC 400mVp-p (20μsec. div.)
IC3001-15 PLAY 400mVp-p (20μsec. div.)
R (31μm)
L (31μm)
IC501
HEAD AMP C, B, A.
YNR
HSS
1H DELAY
LPF
NC1
PICT
DDC
NOR
CLP1
DET
NC2
DTE
MAIN LPF
NLE NLDE
ENV DET
PEAKING
H-TRAP
IIC BUS TRANSCEIVER
SUB LPF
FM DEM
DOUB LIM
IC3001-42 PLAY 400mVp-p (20μsec. div.)
AGC
REC:Y/C PB:Y
Y/C MIX
REC-Y ADJ
LPF
AGC DET
RF AGC
L-TRAP &HPF
W/D CLIP
DEV ADJ
FM MOD
MAIN EMPH
AMP
ART SYNC
SUB CLAMP
COLOUR KILLER SW
BURST UP/DOWN
630KHz BPF
CAGC
REC-C ADJ
BPF (FAMI) 3, 58M (PAL-PB) 2, 2M (NTSC-PB) 1, 79M
BPF 3, 58M/ 4, 43M
BM-B (PB) 2, 2/1, 79M→4, 43/3, 58M (FAMI) 2, 2M→4, 43M
NTSC ALTERNATION
BM-A (REC) 4, 43/3, 58M (PB) 630K→2, 2/1, 79M (FAMI) 3, 58M→2, 2M
2HDL 1HDL
OHDL
OHDL
ACC
ACC DET
IC3001-52 REC/PLAY 2.0Vp-p (20μsec. div.)
PHASE ROTATION
X2
2fsc
fsc
VXO
VCO
1/2
1/4
1/4
SUB BM
F. DET
1/40
APC CK DET
AFC
SIDE LOCK
FH
P3001 P501 4 5 REC Y+C
P3001 P501 5 4 RF Y+C
P3001 P501 6 3 HEAD SW
P3001 P501 2 7 D. REC
P3001 P501 8 1 TRACK ENV.
TO/FROM IC6007
AMP
PREAMP & H. SW
P502 2 L
P502 3 COM
P502 4 R
IC3001-24 REC/PLAY 5.0Vp-p (10msec. div.)
FSC
ROTARY SW
TO/FROM IC6007
(B/D/E) X3002
X3001
FAMI MODE: When setting the NTSC CONVERTER to ON on the OSD Screen Display, the signals from NTSC Signal Source (ex. NTSC GAME Machine) connected to the VCR can be appeared on the PAL TV. However, it is not recordable.

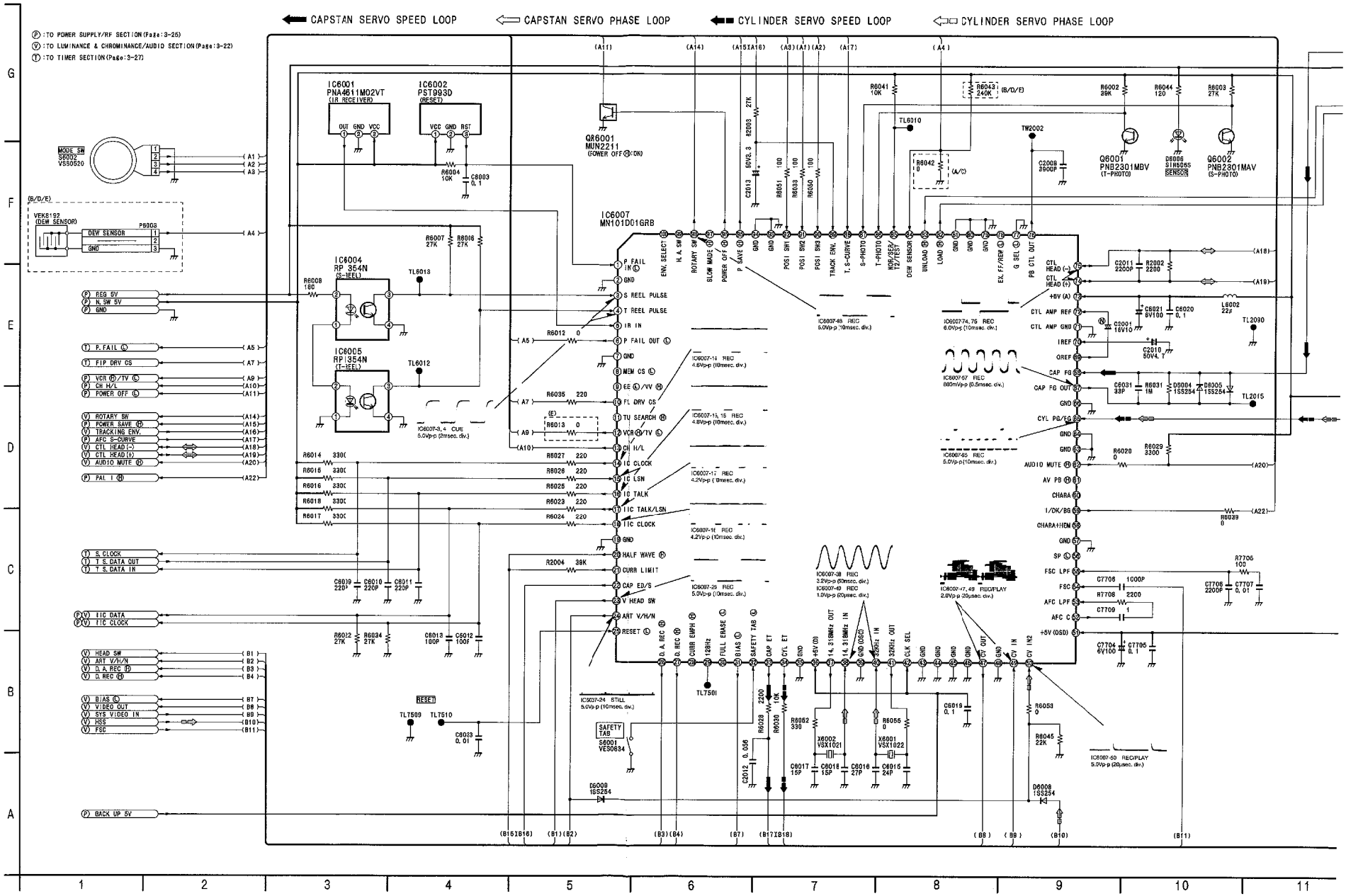
3-4. SYSTEM CONTROL & SERVO BLOCK DIAGRAM

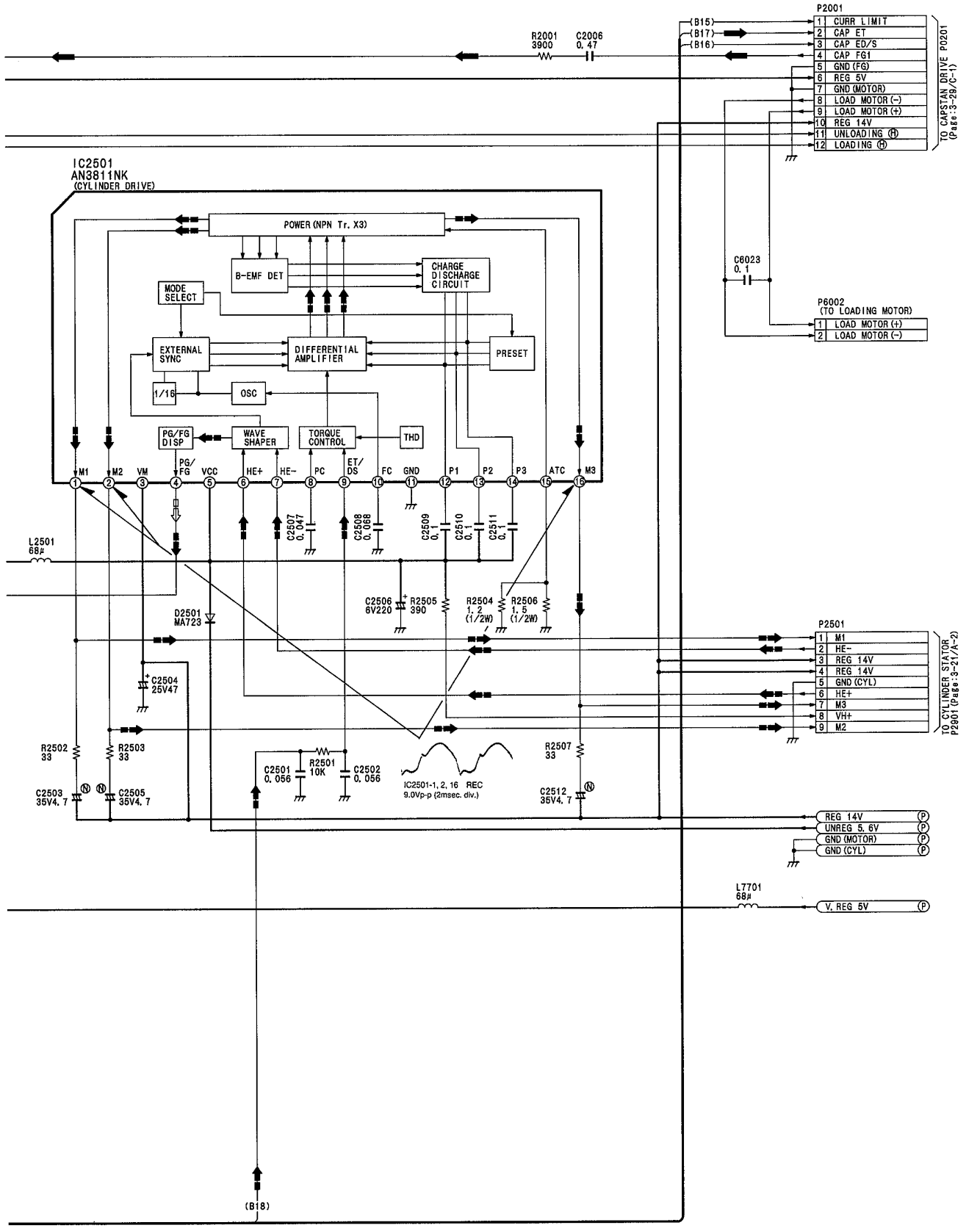


3-5. POWER SCHEMATIC DIAGRAM


CAUTION
THE STRIPED FRAME INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.
HOT
PLAY
STOP
REW
FF
SEARCH
S7511 EVQ11L07B
S7512 EVQ11L07B
S7513 EVQ11L07B
S7514 EVQ11L07B
S7515 EVQ11L07B
P1102
1 G3
2 F1 (GND)
3 G2
4 F0
5 S3
6 UNREG -29V
7
8 HEATER (+)
9 UNREG 5.8V
10 HEATER (-)
11 UNREG 36V
12 GND
13 GND
14 GND (MOTOR)
15 UNREG 14V
16
TO POWER SUPPLY/RF SECTION P1001 (Page:3-26/E-1)
T1160 LT0617
T1150-3 STOP 40Vp-p (5msec. div.)
T1150-7 STOP 100Vp-p (10μsec. div.)
IC1150-4 STOP 2.0Vp-p (10μsec. div.)
IC1150-3 STOP 450Vp-p (10μsec. div.)
IC1150-1 STOP 2.0Vp-p (10μsec. div.)
IC1150-2 STOP 15Vp-p (10μsec. div.)
IC1150 STRF6552LF
START
Q. V. P
LATCH
DRIVE
REG
T. S. D
Q. S. C
IC1200 PC123FY2
IC1200 TL431CLP
D1101 S1WBA80
D1130 MA7300B
D1150 MA723
D1200 MA185
D1201 1SS254
D1202 1SS254
D1250 RL22PLF-C4
D1260 ERA22-04
D1270 ERA22-04
D1280 11EQS04
D1284 21DQ06FC4
TP1280 VSF0015A10T
NOTE: THE MEASURMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.
NOTE1: WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT, SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE.... ⏚
SECONDARY SIDE.. ⏚
NOTE2: THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-6. SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEMATIC DIAGRAM





NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

12 13 14 15 16

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART (SP MODE)

REF. NO.	IC2501																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	15.1	15.1	15.3	1.0	5.0	1.1	1.1	0.5	2.5	1.4	0	3.8	3.8	3.8	0	15.1				
PLAY	15.0	15.0	15.3	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	15.0				
REC	15.0	15.0	15.3	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	15.0				
F.F	14.7	14.7	15.1	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	14.7				
REW	14.7	14.7	15.1	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	14.7				

REF. NO.	IC6001										IC6002									
MODE	1	2	3								1	2	3							
STOP	5.0	0	5.0								5.0	0	5.0							
PLAY	5.0	0	5.0								5.0	0	5.0							
REC	5.0	0	5.0								5.0	0	5.0							
F.F	5.0	0	5.0								5.0	0	5.0							
REW	5.0	0	5.0								5.0	0	5.0							

REF. NO.	IC6004										IC6005									
MODE	1	2	3	4							1	2	3	4						
STOP	1.1	2.3	5.2	0							0	1.1	3.9	0						
PLAY	1.1	2.3	2.5	0							0	1.1	2.5	0						
REC	1.1	2.3	2.5	0							0	1.1	2.5	0						
F.F	1.1	2.3	2.5	0							0	1.1	2.5	0						
REW	1.1	2.3	2.5	0							0	1.1	2.5	0						

REF. NO.	IC6007																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	5.0	0	5.2	3.9	5.0	5.0	0	0.8	0	3.9	0	0	0	4.7	4.5	4.2	3.9	3.9	0	0
PLAY	5.0	0	2.5	2.5	5.0	5.0	0	1.4	5.0	3.7	0	0	0	4.6	4.4	4.0	3.9	3.8	0	0.4
REC	5.0	0	2.5	2.5	5.0	5.0	0	1.5	0	3.7	0	0	0	4.6	4.4	4.1	3.8	3.8	0	0.4
F.F	5.0	0	2.5	2.5	5.0	5.0	0	0.1	0	3.4	0	0	0	4.6	4.2	3.9	3.7	3.6	0	4.8
REW	5.0	0	2.5	2.5	5.0	5.0	0	0.9	0	3.4	0	0	0	4.6	4.2	3.9	3.7	3.6	0	4.8

REF. NO.	IC6007																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	0	2.5	0	5.0	2.6	2.6	0	2.6
PLAY	4.0	0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	2.5	2.4	0	5.0	2.6	2.6	0	2.6
REC	4.0	0	2.5	0	5.0	4.9	5.0	0	2.5	0.2	0.2	0	2.5	2.4	0	5.0	2.6	2.6	0	2.5
F.F	4.9	0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	5.0	2.4	0	5.0	2.6	2.6	0	2.6
REW	4.9	5.0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	5.0	2.4	0	5.0	2.6	2.6	0	2.5

REF. NO.	IC6007																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	2.7	5.0	0	0	0	0	1.9	0	1.9	0.5	5.1	2.5	2.6	0.7	0.1	0	0	0	0	0
PLAY	2.7	5.0	0	0	0	0	1.9	0	1.9	0.5	5.1	2.5	2.6	1.1	0.1	0	0	0	0	0
REC	2.7	5.0	0	0	0	0	1.9	0	1.9	0.5	5.1	2.5	2.6	1.2	0.1	0	0	0	0	0
F.F	2.7	5.0	0	0	0	0	1.9	0	1.9	0.5	5.1	2.5	2.6	0.9	0.3	0	0	0	0	0
REW	2.7	5.0	0	0	0	0	1.9	0	1.9	0.5	5.1	2.5	2.6	0.4	0.2	0	0	0	0	0

REF. NO.	IC6007																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	0	0	0
PLAY	5.0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	0	0	0
REC	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.9	2.5	2.5	0	0	0	0
F.F	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	2.1	0	0
REW	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	2.1	0	0

REF. NO.	IC6007																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	0	0	0	0	5.0	4.8	5.0	2.4	1.6	5.0	0	0	0	0	0	0	5.0	0	0	1.7
PLAY	0	0	0	0	5.0	4.8	5.0	2.4	4.0	5.0	0	0	0	0	0	0	5.0	2.5	0	5.0
REC	0	0	0	0	5.0	4.7	5.0	2.4	2.2	5.0	0	0	0	0	0	0	5.0	2.5	0	0
F.F	0	0	0	0	5.0	4.8	5.0	2.4	1.0	5.0	5.0	0	0	0	0	0	5.0	0	0	2.6
REW	0	0	0	0	5.0	4.8	5.0	2.4	3.3	5.0	5.0	0	0	0	0	0	5.0	0	0	3.7

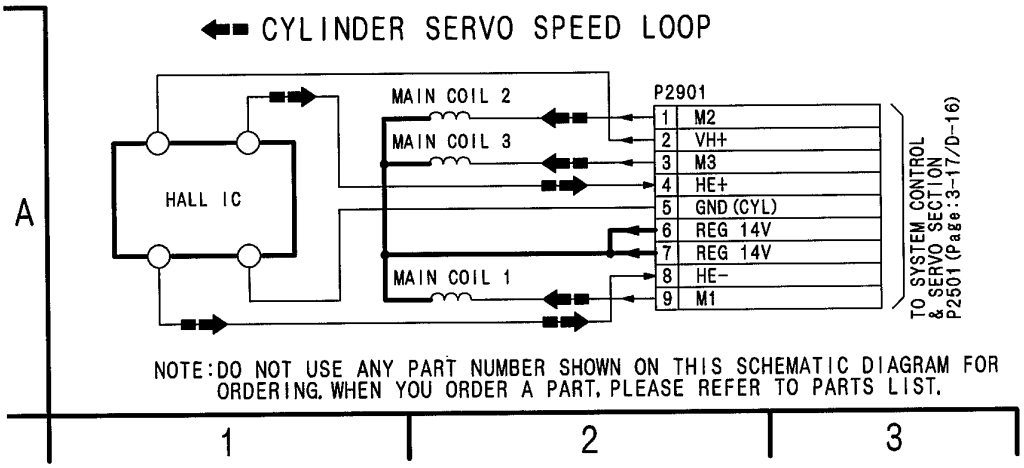
REF. NO.	IC7701																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	5.1	1.8	1.9	1.8	0	5.1	0	1.9	1.9	1.9	1.8	0	0	5.1						
PLAY	5.1	1.8	1.8	1.8	0	5.1	0	1.8	1.8	1.8	1.8	0	0	5.1						
REC	5.1	1.8	1.9	1.8	0	5.1	0	1.9	1.9	1.9	1.8	0	0	5.1						
F.F	5.1	1.8	1.9	1.8	0	5.1	0	1.9	1.9	1.9	1.8	0	0	5.1						
REW	5.1	1.8	1.9	1.8	0	5.1	0	1.9	1.9	1.9	1.8	0	0	5.1						

REF. NO.	IC7702																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1						
PLAY	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1						
REC	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1						
F.F	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1						
REW	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1	0	5.1						

SYSTEM CONTROL & SERVO TRs VOLTAGE CHART (SP MODE)

REF. NO.	Q6001			Q6002															
MODE	E	C		E	C														
STOP	4.6	0		5.0	0														
PLAY	4.8	0		5.0	0														
REC	4.6	0		5.0	0														
F.F	4.7	0		5.0	0														
REW	4.7	0		5.0	0														
REF. NO.	QR6001																		
MODE	E	C	B																
STOP	0	12.9	0																
PLAY	0	12.8	0																
REC	0	12.8	0																
F.F	0	12.8	0																
REW	0	12.0	0																

3-7. CYLINDER STATOR UNIT SCHEMATIC DIAGRAM

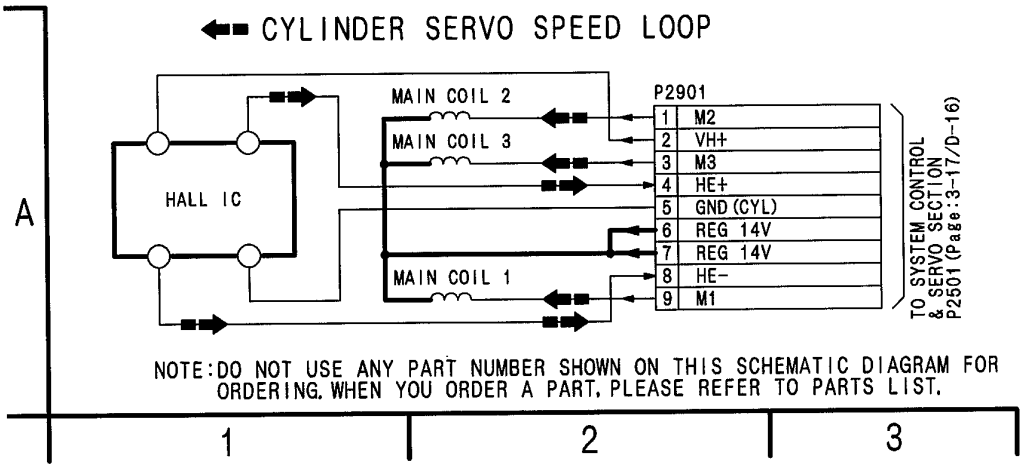


NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SYSTEM CONTROL & SERVO TRs VOLTAGE CHART (SP MODE)

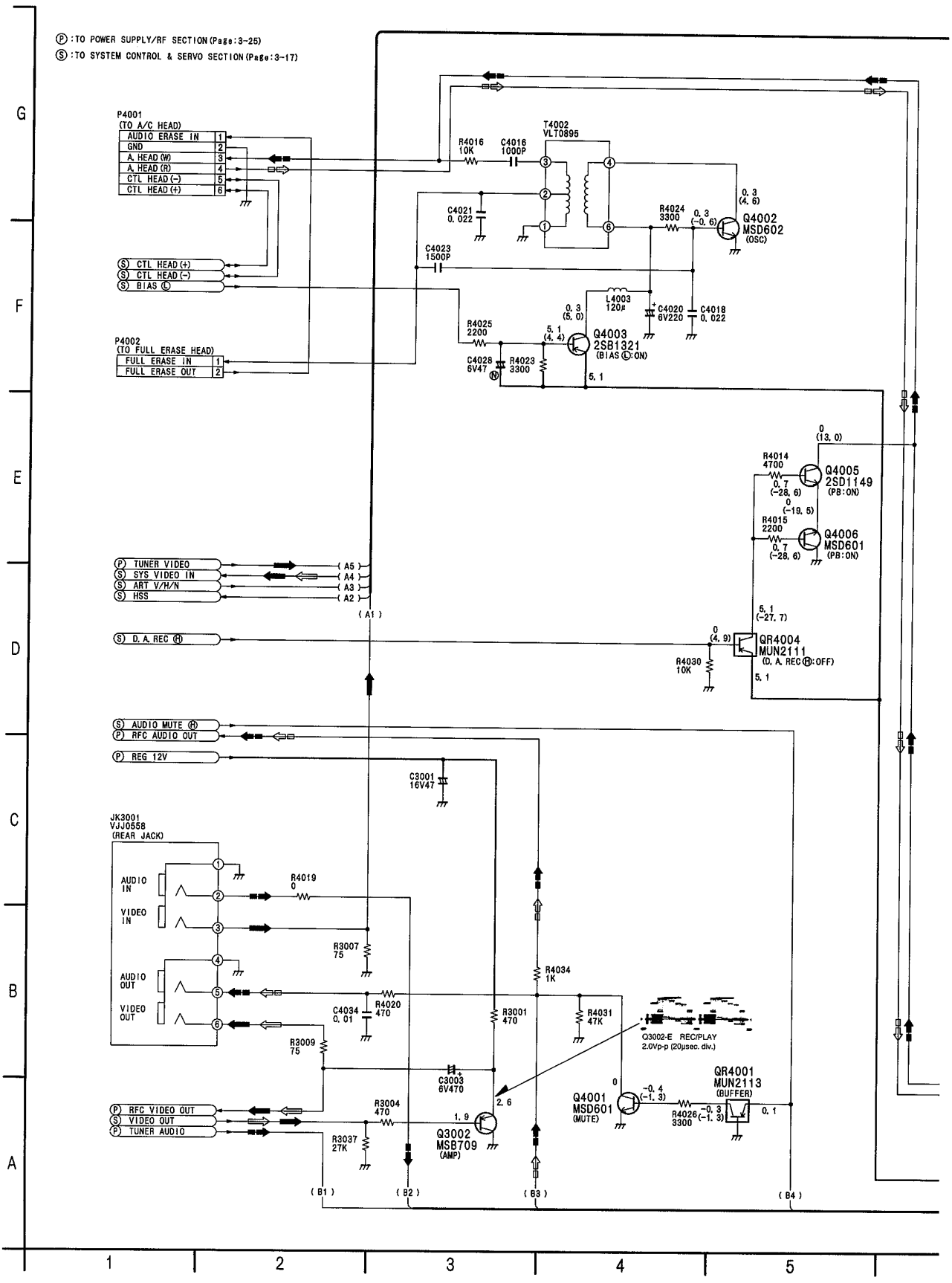
REF. NO.	Q6001			Q6002															
MODE	E	C		E	C														
STOP	4.6	0		5.0	0														
PLAY	4.8	0		5.0	0														
REC	4.6	0		5.0	0														
F.F	4.7	0		5.0	0														
REW	4.7	0		5.0	0														
REF. NO.	QR6001																		
MODE	E	C	B																
STOP	0	12.9	0																
PLAY	0	12.8	0																
REC	0	12.8	0																
F.F	0	12.8	0																
REW	0	12.0	0																

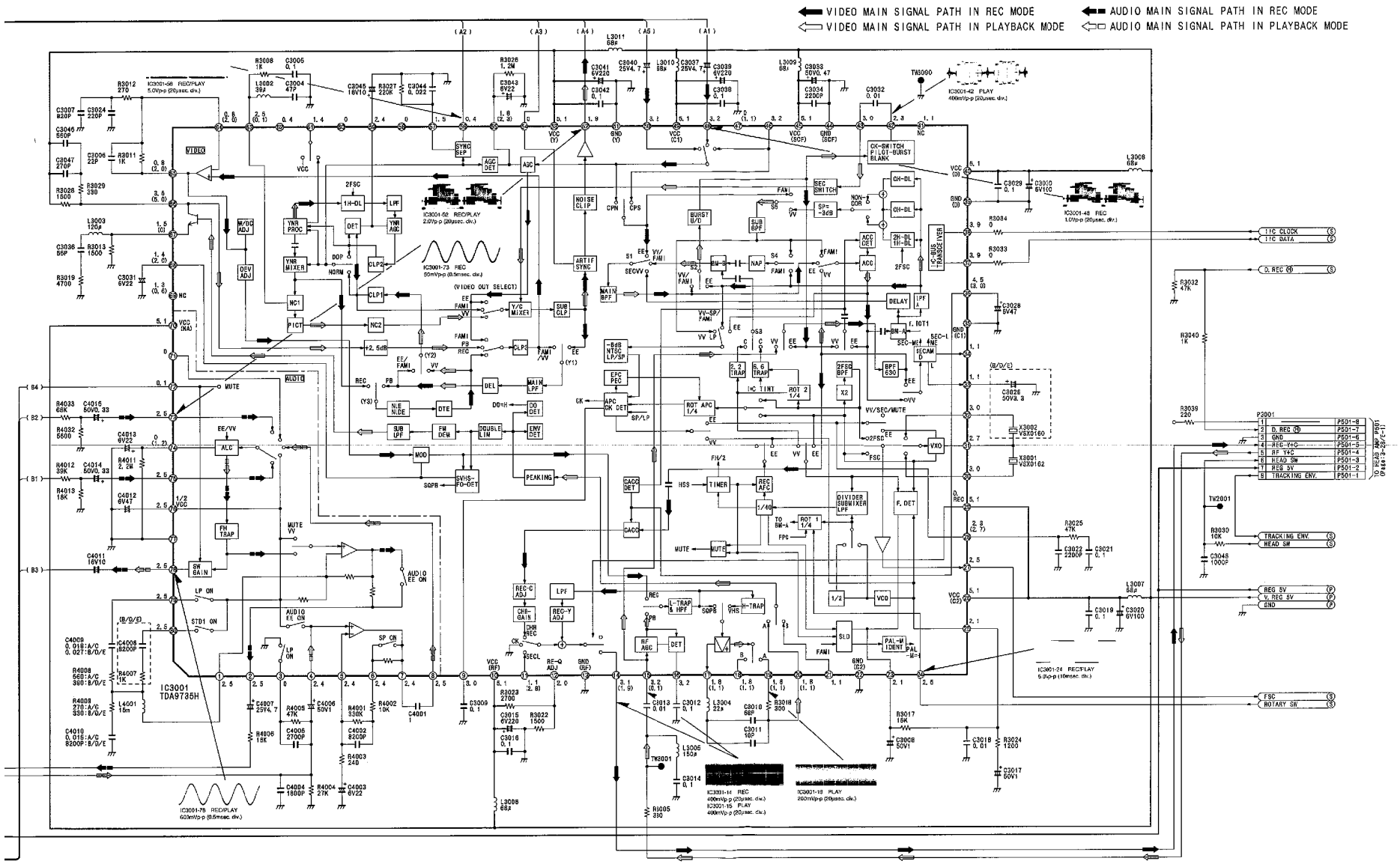
3-7. CYLINDER STATOR UNIT SCHEMATIC DIAGRAM



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-8. LUMINANCE & CHROMINANCE/AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM





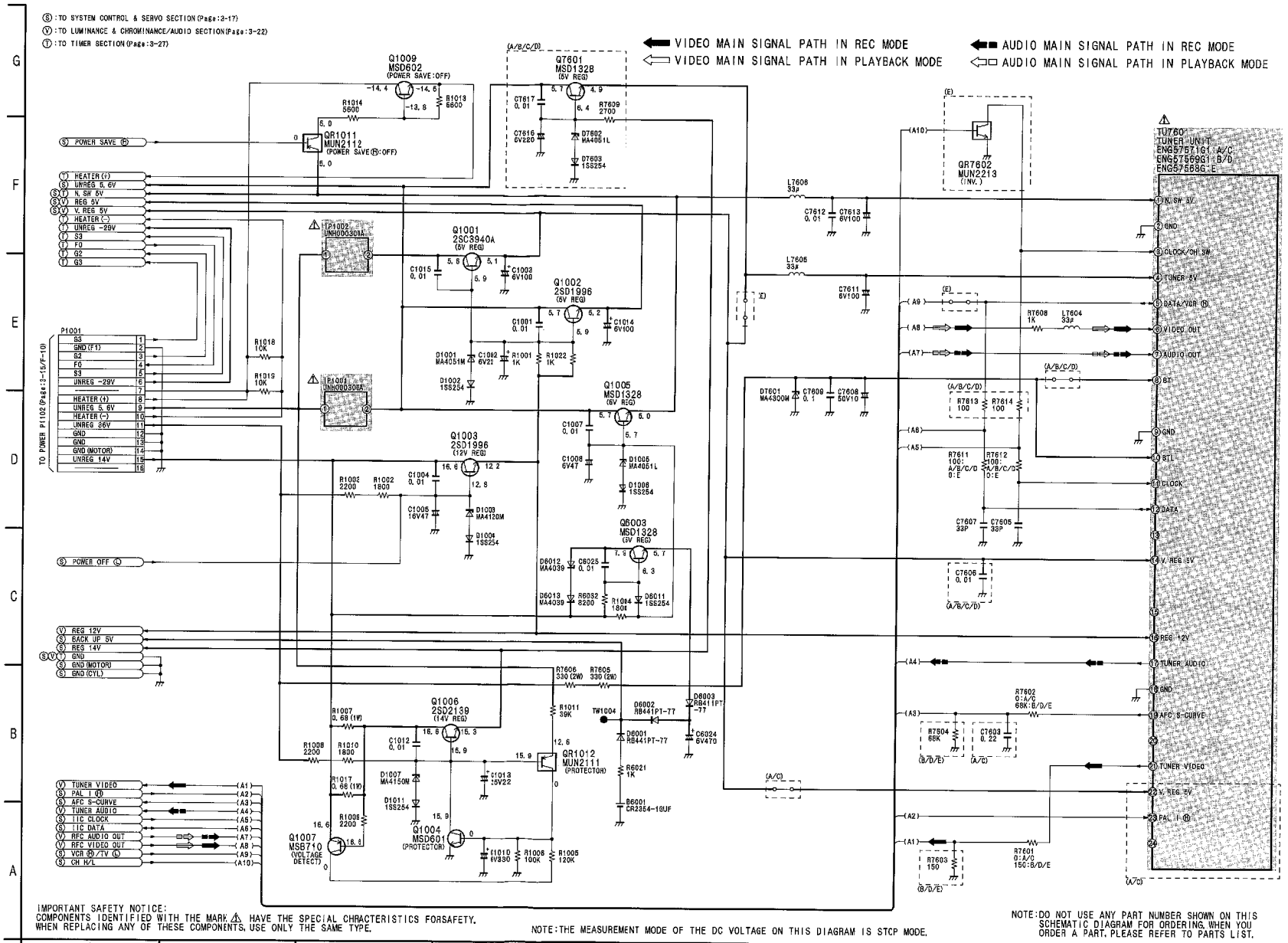
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (SP MODE)

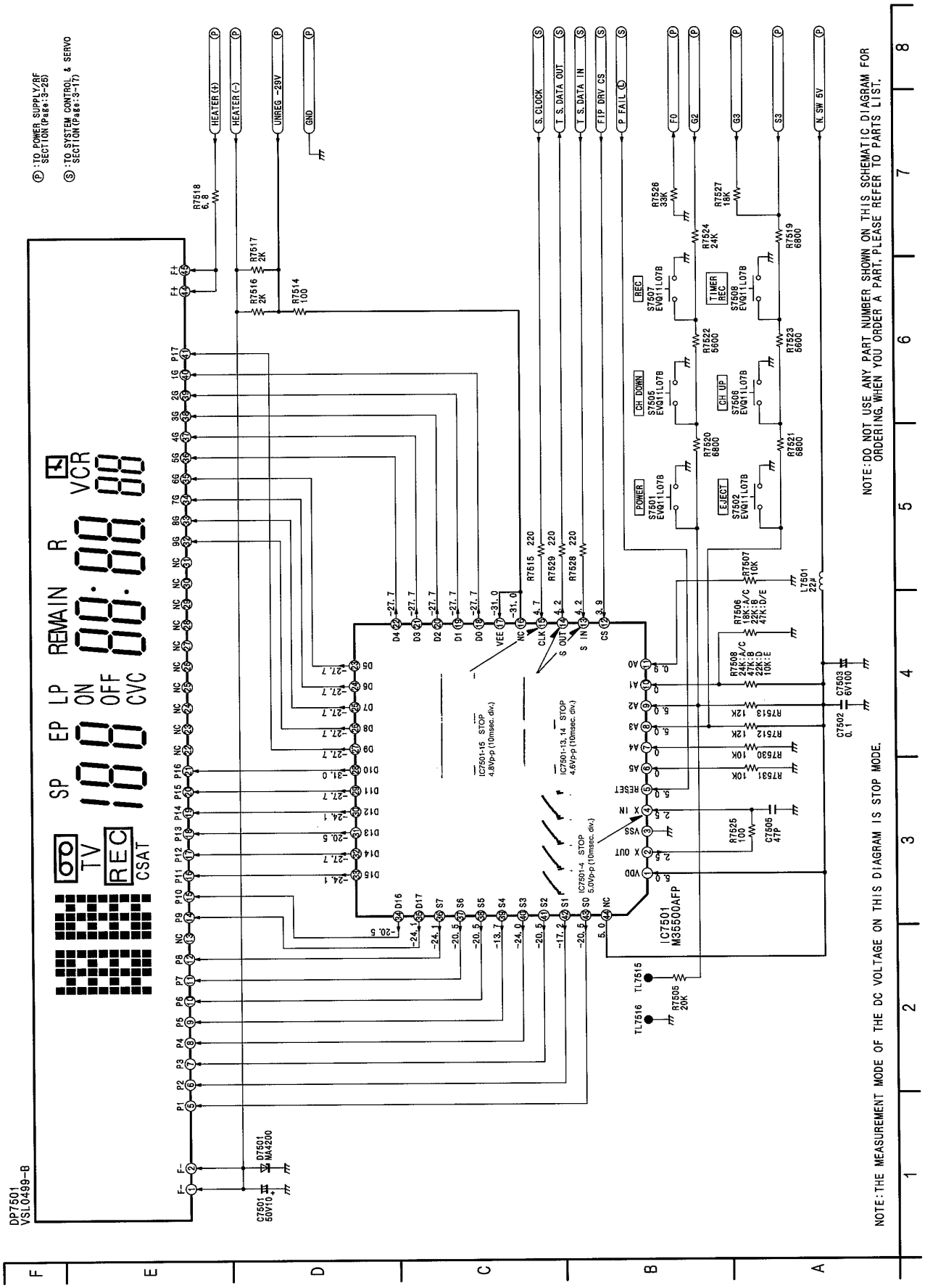
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17

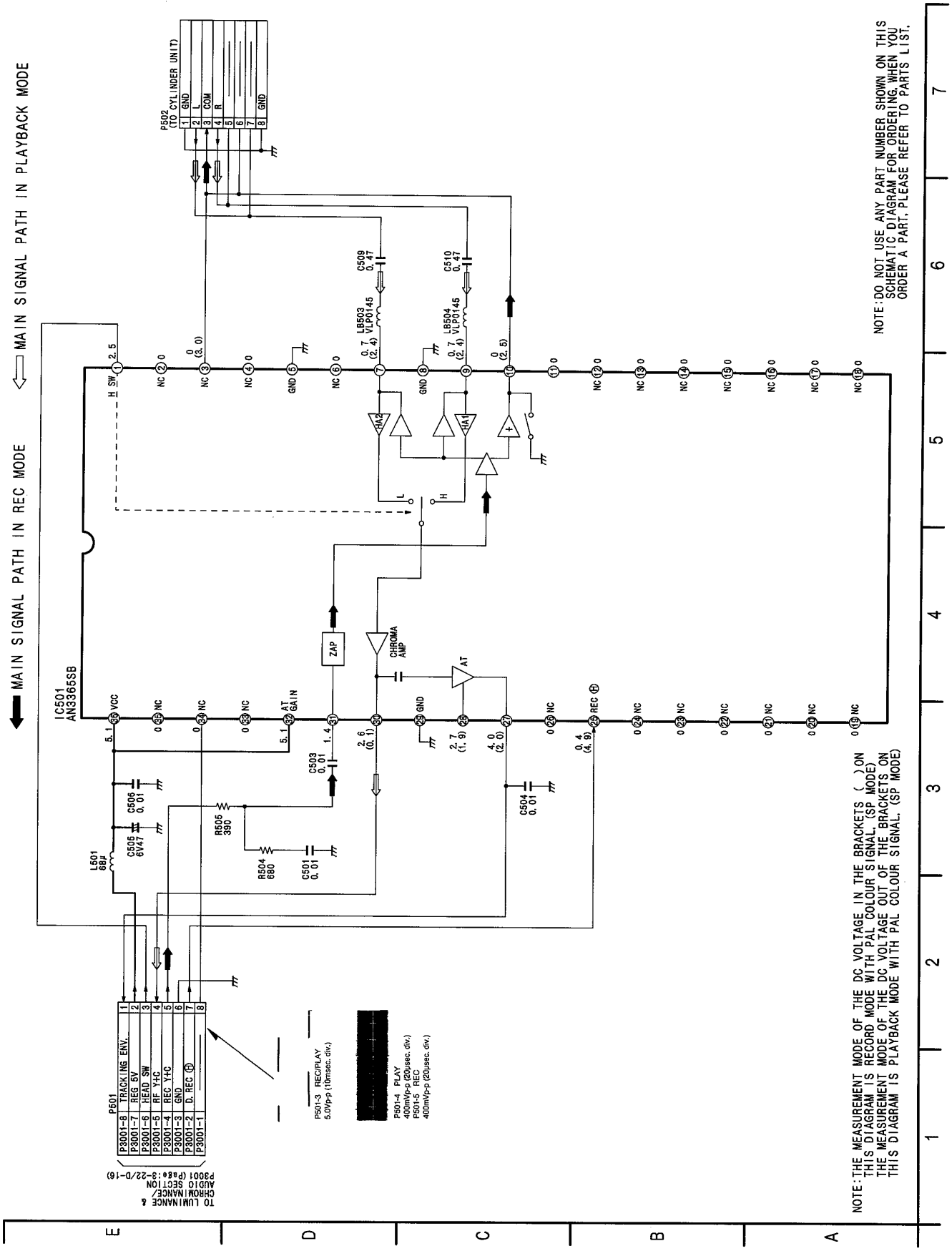
3-9 POWER SUPPLY/RF SECTION IN MAIN SCHEMATIC DIAGRAM


Ⓢ : TO SYSTEM CONTROL & SERVO SECTION (Page : 3-17)
Ⓥ : TO LUMINANCE & CHROMINANCE/AUDIO SECTION (Page : 3-22)
Ⓣ : TO TIMER SECTION (Page : 3-27)
VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE
Q1009 MSD602 (POWER SAVE:OFF)
Q7601 MSD1328 (5V REG)
QR1011 MUN2112 (POWER SAVE Ⓡ:OFF)
QR7602 MUN2213 (INV.)
Q1001 2SC3940A (5V REG)
Q1002 2SD1996 (5V REG)
Q1003 2SD1996 (12V REG)
Q1005 MSD1328 (5V REG)
Q6003 MSD1328 (3V REG)
Q1006 2SD2139 (14V REG)
QR1012 MUN2111 (PROTECTOR)
Q1004 MSD601 (PROTECTOR)
Q1007 MSB710 (VOLTAGE DETECT)
TU760 TUNER UNIT ENG57571G1 : A/C ENG57569G1 : B/D ENG57568G : E
P1001
TO POWER P1102 (Page : 3-15/F-10)
P1102 UNH000308A
P1003 UNH000308A
S POWER SAVE Ⓡ
S POWER OFF Ⓛ
V HEATER (+)
S UNREG 5.6V
S N. SW 5V
S REG 5V
S V. REG 5V
V HEATER (-)
T UNREG -29V
T S3
T FO
T G2
T G3
S UNREG 36V
V REG 12V
S BACK UP 5V
S RES 14V
V GND
S GND (MOTOR)
S GND (CYL)
V TUNER VIDEO
S PAL I Ⓓ
S AFC S-CURVE
V TUNER AUDIO
S IIC CLOCK
S IIC DATA
V RFC AUDIO OUT
V RFC VIDEO OUT
S VCR Ⓡ/TV Ⓛ
S CH H/L
1 N. SW 5V
2 GND
3 CLOCK/CH. SW
4 TUNER 5V
5 DATA/VDR Ⓡ
6 VIDEO OUT
7 AUDIO OUT
8 BT
9 GND
10 BTL
11 CLOCK
12 DATA
13
14 V. REG 5V
15
16 REG 12V
17 TUNER AUDIO
18 GND
19 AFC S-CURVE
20
21 TUNER VIDEO
22 V. REG 5V
23 PAL I Ⓓ
24
(A/C)
(B/D/E)
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHRACTERISTICS FORSAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

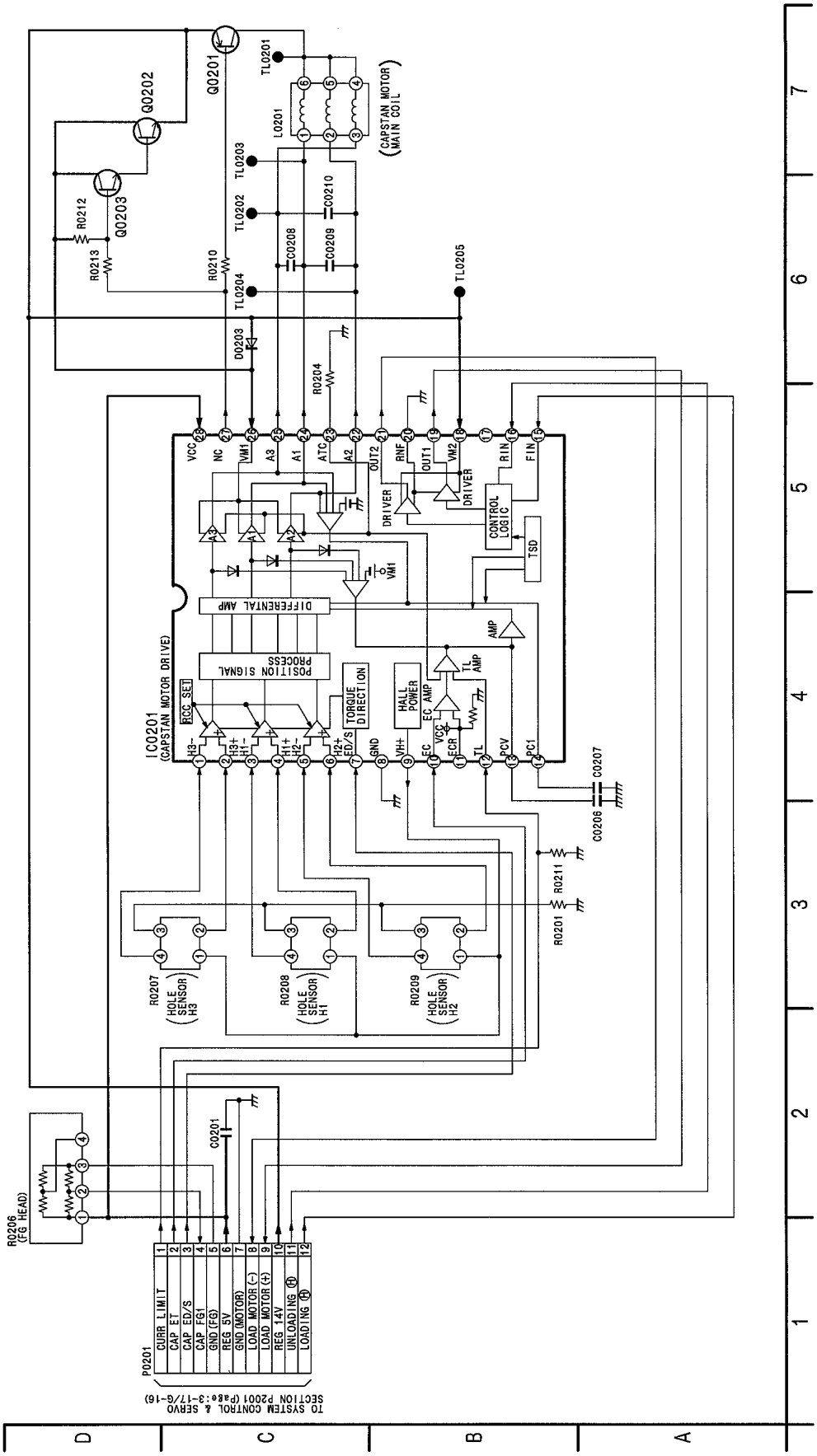
3-10. TIMER SECTION IN MAIN SCHEMATIC DIAGRAM



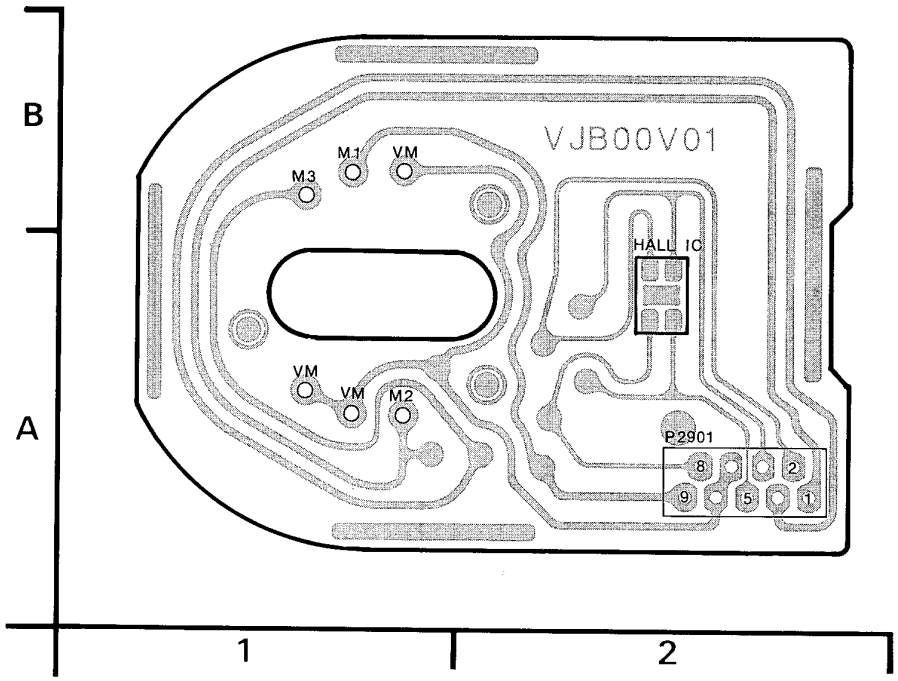
3-11. HEAD AMP SCHEMATIC DIAGRAM



3-12. CAPSTAN UNIT SCHEMATIC DIAGRAM



3-13 CYLINDER STATOR UNIT (VEK7236)



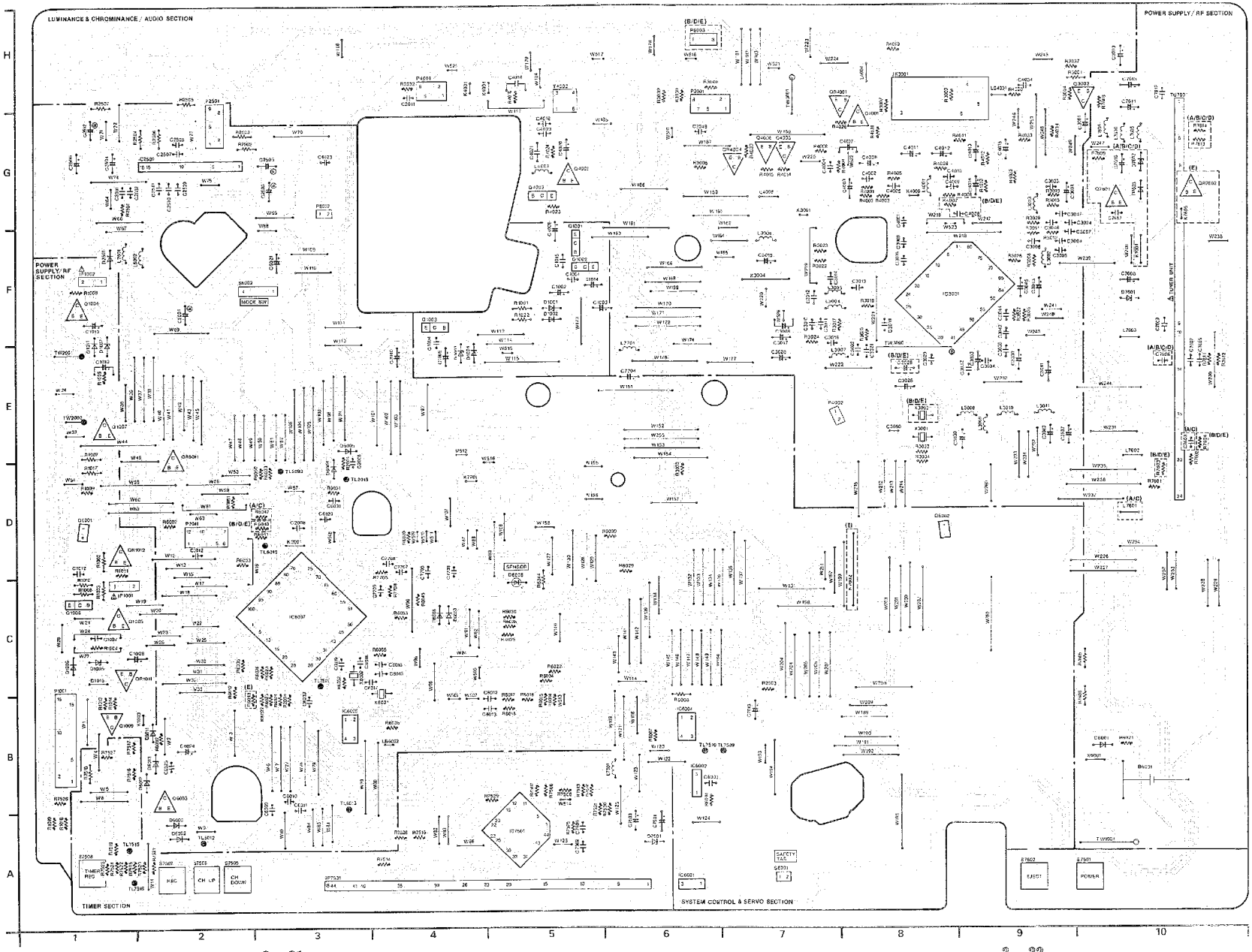
CYLINDER STATOR UNIT	
Integrated Circuit	
HALL IC	A-2
Connector	
P2901	A-2

ADDRESS INFORMATION

MAIN C.B.A.									
Transistor		**Transistor & Resistor**		**Integrated Circuit**		**Test Point**		**Connector**	
Q1001	F-5	QR1011	C-1	IC2501	G-2	TL2015	D-3	P1001	B-1
Q1002	F-5	QR1012	D-1	IC3001	F-8	TL2090	D-3	P2001	D-2
Q1003	F-4	QR4001	H-8	IC6001	A-6	TL6010	D-3	P2501	G-2
Q1004	F-1	QR4004	G-7	IC6002	B-6	TL6012	A-2	P3001	H-6
Q1005	C-1	QR6001	E-2	IC6004	B-6	TL6013	B-3	P4001	H-4
Q1006	C-1	QR7602	G-10	IC6005	B-3	TL7501	C-3	P4002	E-7
Q1007	E-1			IC6007	C-3	TL7509	B-7	P6002	G-3
Q1009	B-1			IC7501	A-5	TL7510	B-6	P6003	H-6
Q3002	H-10					TL7515	A-1	TU7601	G-10
Q4001	G-8					TL7516	A-1		
Q4002	G-5					TW1004	A-10		
Q4003	G-5					TW2001	E-1		
Q4005	G-7					TW2002	E-1		
Q4006	G-7					TW3001	H-7		
Q6001	D-1					TW3090	E-8		
Q6002	D-8								
Q6003	B-2								
Q7601	G-10								

ADDRESS INFORMATION

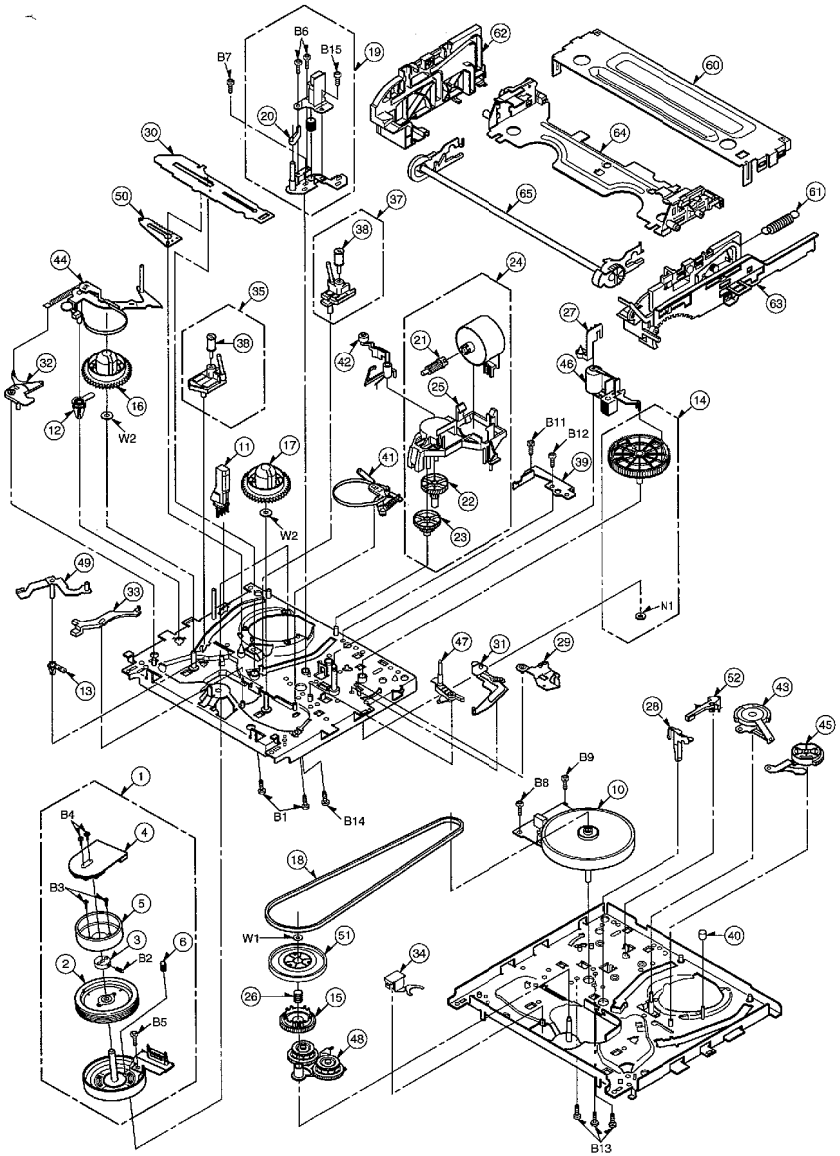
3-14 MAIN C.B.A (VEP06C53J: NV-SD227SA, SD230SA) (VEP06C53G: NV-SD230A) (VEP06C53P: NV-SD280A) (VEP06C53Q: NV-SD280EA)



SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEW & MECHANICAL REPLACEMENT PARTS LIST

❶ CHASSIS PARTS SECTION

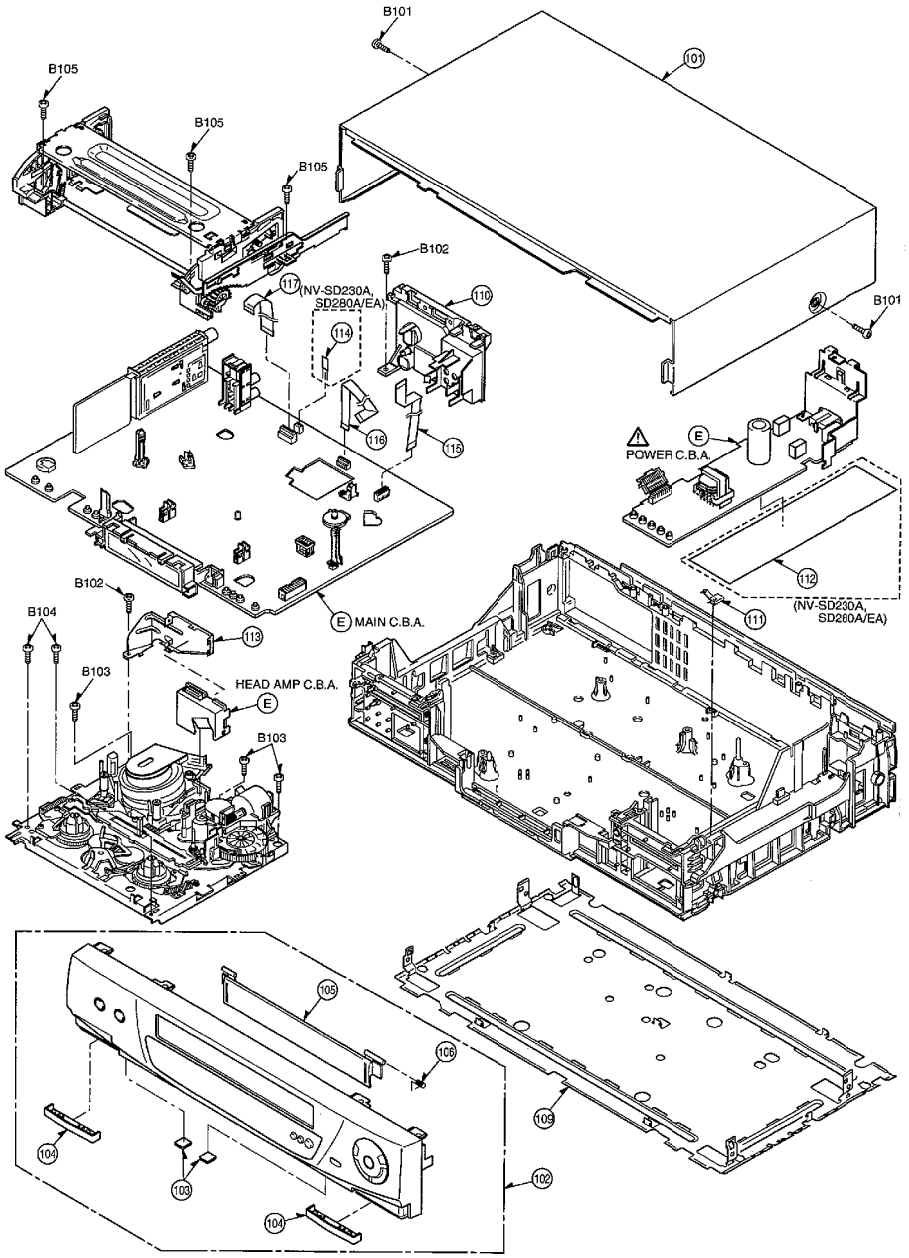


Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1 (1)	\EG1360	CYLINDER UNIT	1	
2 (1)	\EH0832	UPPER CYLINDER UNIT	1	
3 (1)	\DB1256	CYLINDER RETAINER	1	
⚠ 4 (1)	\EK7238	CYLINDER STATOR UNIT	1	
5 (1)	\XP1823	CYLINDER ROTOR UNIT	1	
6 (1)	\XS0135	EARTH BRUSH UNIT	1	
10 (1)	\EK8828	CAPSTAN UNIT	1	[SUPPLIED FROM MAV]
11 (1)	\BS0155	FE HEAD	1	
12 (1)	\DB1431	TENSION ARM BOSS	1	
13 (1)	\DB1460	SUPPLY BRAKE ARM BOSS	1	
14 (1)	\DG1220KIT	MAIN CAM GEAR	1	
15 (1)	\DG1221	CONVERSION GEAR	1	
16 (1)	\DR0346	SUPPLY REEL TABLE	1	
17 (1)	\DR0347	TAKE UP REEL TABLE	1	
18 (1)	\DV0382	CAPSTAN BELT	1	
19 (1)	\ED0412	A/C HEAD UNIT	1	
20 (1)	\MX2656	P4 CAP	1	
21 (1)	\DG1217	WORM GEAR	1	
22 (1)	\DG1218	WORM WHEEL GEAR	1	
23 (1)	\DG1219	CENTRE GEAR	1	
24 (1)	\EM0604	LOADING MOTOR UNIT	1	
25 (1)	\MD2619	MOTOR BRACKET	1	
26 (1)	\MB3045	CONVERSION GEAR SPRING	1	
27 (1)	\MD2620	OPENER PIECE	1	
28 (1)	\MD2738	LED PRISM	1	
29 (1)	\ML3165	DRIVE RACK ARM	1	
30 (1)	\ML3166	MAIN LEVER	1	
31 (1)	\ML3167	DRIVE MAIN LEVER ARM	1	
32 (1)	\ML3172	SUPPLY SPRING ARM	1	
33 (1)	\ML3176	CONVERSION LEVER A	1	
34 (1)	\ML3177	CONVERSION LEVER B	1	
35 (1)	\XA8040	INCLINED BASE (S) UNIT	1	
37 (1)	\XA5854	INCLINED BASE (T) UNIT	1	
38 (1)	\XP1840	ROLLER POST	2	
39 (1)	\MA9872	SUPPORT ANGLE	1	
40 (1)	\MX2639	CIRCUIT BOARD PROTECTOR	1	
41 (1)	\XL2867	TAKE UP BRAKE ARM UNIT	1	
42 (1)	\XL2669	CLEANER ARM UNIT	1	
43 (1)	\XL2670	TAKE UP LOADING ARM UNIT	1	
44 (1)	\XL2798	TENSION ARM UNIT	1	
45 (1)	\XL2672	SUPPLY LOADING ARM UNIT	1	
46 (1)	\XL2785	PINCH ARM UNIT	1	
47 (1)	\XL2677	P5 ARM UNIT	1	
48 (1)	\XL2792	IDLER ARM UNIT	1	
49 (1)	\XL2733	SUPPLY BRAKE ARM UNIT	1	
50 (1)	\XL2747	LOADING RACK UNIT	1	
51 (1)	\XP1732	CENTRE CLUTCH UNIT	1	
52 (1)	\XZ0430	SS BRAKE ARM UNIT	1	
60 (1)	\MA9516	TOP PLATE	1	
61 (1)	\MB3047	CONNECTION SPRING	1	
62 (1)	\MD2625	SIDE PLATE (L)	1	
63 (1)	\XA5740	SIDE PLATE (R) UNIT	1	
64 (1)	\XA5746	CASSETTE HOLDER UNIT	1	
65 (1)	\XP1730	MAIN SHAFT UNIT	1	
B1 (1)	\HD1117	SCREW	2	
B2 (1)	\HD0842	SCREW	1	
B3 (1)	\HD0843	SCREW	2	
B4 (1)	\HD0844	SCREW	2	
B5 (1)	)YN26+C5	SCREW	1	
B6 (1)	\HD1066	SCREW	2	
B7 (1)	\HD1044	SCREW	1	
B8 (1)	\HD1060	SCREW	1	
B9 (1)	\HD1071	SCREW	1	
B11 (1)	)TS26+8F	SCREW	1	
B12 (1)	)TN26+8F	SCREW	1	
B13 (1)	)TN26+7J	SCREW	3	
B14 (1)	\HD1095	SCREW	1	
B15 (1)	\HD1185	SCREW	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
N1 (1)	VHN0311	PUSH NUT	1	
W1 (1)	VMX2208	WASHER	1	
W2 (1)	VMX2650	WASHER	2	

❷ CASING PARTS SECTION



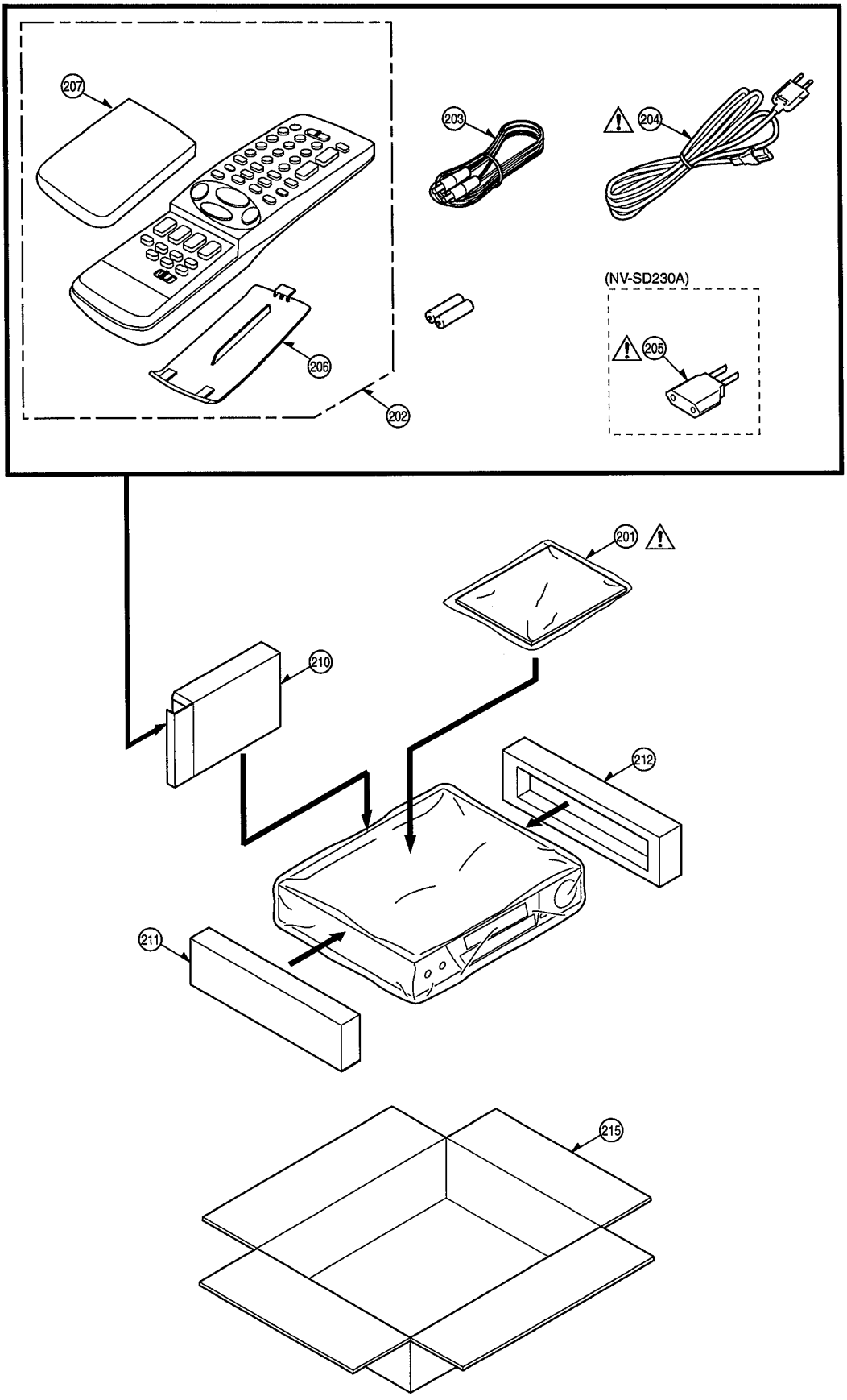
Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark △ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
101 (2)	VGM1332	TOP PANEL	1	
102 (2)	VYP7039	FRONT PANEL UNIT	1	[SUPPLIED FROM MAV]
				NV-SD227SA
102 (2)	VYP7038	FRONT PANEL UNIT	1	[SUPPLIED FROM MAV]
				NV-SD230A
102 (2)	VYP7041	FRONT PANEL UNIT	1	[SUPPLIED FROM MAV]
				NV-SD230SA
102 (2)	VYP7042	FRONT PANEL UNIT	1	[SUPPLIED FROM MAV]
				NV-SD280A
102 (2)	VYP7043	FRONT PANEL UNIT	1	[SUPPLIED FROM MAV]
				NV-SD280EA
103 (2)	RKA0072	FOOT	2	
104 (2)	VKA0303	LEG	2	
105 (2)	VKF2992	BLINDER PANEL	1	
106 (2)	VMB2521	BLINDER SPRING	1	
109 (2)	VKU0519	BOTTOM PLATE	1	
110 (2)	VJH1046	JACK PLATE	1	
111 (2)	VMC1065	EARTH SPRING	1	
112 (2)	VMZ2852	BARRIER	1	[SUPPLIED FROM MAV]
				NV-SD230A
				NV-SD280A/EA
113 (2)	VSC4564	HEAD AMP SHIELD	1	
114 (2)	VEK8192	DEW SENSOR	1	NV-SD230A
				NV-SD280A/EA
115 (2)	VWJ1265	FLAT CARD CABLE (9P)	1	P2501 - P2901
116 (2)	VWJ1128	FLAT CARD CABLE (6P)	1	P4001 - A/C HEAD
117 (2)	VWJ08D2092BB	FLAT CARD CABLE (8P)	1	P3001 - P501
B101 (2)	XTW3+10TFC	SCREW	2	
B102 (2)	VHD0773	SCREW	2	
B103 (2)	VHD1065	SCREW	3	
B104 (2)	VHD0188	SCREW	2	
B105 (2)	XTV26+8FR	SCREW	3	

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark △ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
△ 201 (3)	VQT7736	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MAV]
		(ENGLISH/AFRIKAANS)		NV-SD227SA
△ 201 (3)	VQT7735	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MAV]
		(ENGLISH)		NV-SD230A
△ 201 (3)	VQT7739	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MAV]
		(ENGLISH/AFRIKAANS)		NV-SD230SA
△ 201 (3)	VQT7740	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MAV]
		(ENGLISH)		NV-SD280A/EA
202 (3)	VEQ2138	REMOTE CONTROLLER	1	NV-SD227SA
				NV-SD230A/SA
202 (3)	VEQ2244	REMOTE CONTROLLER	1	[SUPPLIED FROM MAV]
				NV-SD280A/EA
203 (3)	VJA0376	DIN RF CABLE	1	
△ 204 (3)	VJA0664	AC CORD	1	NV-SD227SA
				NV-SD230SA
△ 204 (3)	VJA0754	AC CORD	1	NV-SD230A
				NV-SD280A/EA
△ 205 (3)	VJP2974	AC PLUG ADAPTOR	1	NV-SD230A
206 (3)	VKF3025	BATTERY COVER	1	
207 (3)	VGP4980	DOOR PANEL	1	
210 (3)	VPK1726	ACCESSORIES PACKING	1	
211 (3)	VPN4546	CUSHION (L)	1	
212 (3)	VPN4545	CUSHION (R)	1	
215 (3)	VPG9545	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-SD227SA
215 (3)	VPG8544	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-SD230A
215 (3)	VPG9548	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-SD230SA
215 (3)	VPG9549	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-SD280A
215 (3)	VPG9550	PACKING CASE	1	[SUPPLIED FROM MAV]
				NV-SD280EA
		SERVICE FIXTURES & TOOLS		
	VFJ8125H3F	VHS ALIGNMENT TAPE (PAL)	1	
	VFK0335	RETAINING RING REMOVER	1	
		(3mm/4mm)		
	VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
	VFK0326	HEX WRENCH SET	1	
	VFK0132	BACK TENSION METER	1	
	VFK27	HEAD CLEANING STICK	1	
	VFK1024	MOLYTONE GREASE	1	
	VFK0330	FINE ADJUSTMENT GEAR DRIVER	1	
	VFK2744	16P EXTENSION CABLE	1	MAIN - POWER
	VFK1301	SILICONE GREASE	1	

❸ PACKING PARTS SECTION



4-2. ELECTRICAL REPLACEMENT PARTS LIST

Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE: Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICROFARADS (uf), P=uuF.
4. The P.C. Board units marked width "■" show below the main assembled parts.
5. The marking (RTL) indicaters the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■	VEP06C53J	MAIN C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-6)		(RTL) NV-SD227SA
				NV-SD230SA
■	VEP06C53G	MAIN C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-8)		(RTL) NV-SD230A
■	VEP06C53P	MAIN C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-11)		(RTL) NV-SD280A
■	VEP06C53Q	MAIN C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-13)		(RTL) NV-SD280EA
■	VEP05367B	HEAD AMP C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-16)		(RTL)
⚠ ■	VEP01819E	POWER C.B.A.	1	[SUPPLIED FROM MAV]
		(Page:4-16)		(RTL)
■	----------	CYLINDER STATOR C.B.A.	1	C.B.A. IS INCLUDED IN
		(Page:4-16)		CYLINDER STATOR UNIT
				(VEK7236).
■	----------	CAPSTAN DRIVE	1	C.B.A. IS INCLUDED IN
				CAPSTAN UNIT (VEK8629).
⚠ TU7601	ENG57571G1	TUNER	1	[SUPPLIED FROM MAV]
				NV-SD227SA
				NV-SD230SA
⚠ TU7601	ENG57569G1	TUNER	1	[SUPPLIED FROM MAV]
				NV-SD230A
				NV-SD280A
⚠ TU7601	ENG57568G	TUNER	1	[SUPPLIED FROM MAV]
				NV-SD280EA
⚠ F1180	XBA2C16TBO	FUSE	1	
■	VEP06C53J	MAIN C.B.A.		[SUPPLIED FROM MAV]
				(RTL) NV-SD227SA
				NV-SD230SA
B6001	CR2354-1GUF	LITHIUM BATTERY	1	
C1001	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1002	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C1003	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C1004	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1005	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C1007	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1008	VCEA0JBS470	E. CAPASITOR 6.3V 47U	1	
C1010	VCEA0JCB331	E. CAPASITOR 6.3V 330U	1	
C1012	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1013	VCEA1ECB220	E. CAPACITOR 25V 22U	1	
C1014	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C1015	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C2001	VCEA1CBB100	E. CAPACITOR 16V 10U	1	
C2006	ECUM1C474KBN	C. CAPACITOR CH 16V 0.47U	1	
C2008	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1	
C2010	VCEA1HCB4R7	E. CAPACITOR 50V 4.7U	1	
C2011	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C2012	ECUM1E563KBN	C. CAPACITOR CH 25V 0.056U	1	
C2013	VCEA1HCB3R3	E. CAPACITOR 50V 3.3U	1	
C2501,02	ECUM1E563KBN	C. CAPACITOR CH 25V 0.056U	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C2503	VCEA1VBB4R7	E. CAPACITOR 35V 4.7U	1	
C2504	VCEA1ECB470	E. CAPACITOR 25V 47U	1	
C2505	VCEA1VBB4R7	E. CAPACITOR 35V 4.7U	1	
C2506	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C2507	ECUM1H473ZFN	C. CAPACITOR CH 50V 0.047U	1	
C2508	ECUM1E683KBN	C. CAPACITOR CH 25V 0.068U	1	
C2509-11	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	3	
C2512	VCEA1VBB4R7	E. CAPACITOR 35V 4.7U	1	
C3001	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C3003	VCEA0JEC471	E. CAPASITOR 6.3V 470U	1	
C3004	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C3005	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3006	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C3007	ECUM1H821JCN	C. CAPACITOR CH 50V 820P	1	
C3008	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3009	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3010	ECUM1H680JCN	C. CAPACITOR CH 50V 68P	1	
C3011	ECUM1H100DCN	C. CAPACITOR CH 50V 10P	1	
C3012	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3013	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3014	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3015	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3016	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3017	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3018	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C3019	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3020	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C3021	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3022	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3024	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C3028	VCEA0JCB470	E. CAPASITOR 6.3V 47U	1	
C3029	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3030	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C3031	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C3032	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3033	VCEA1HCBR47	E. CAPACITOR 50V 0.47U	1	
C3034	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3036	ECUM1H560JCN	C. CAPACITOR CH 50V 56P	1	
C3037	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C3038	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3039	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3040	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C3041	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3042	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3043	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C3044	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C3045	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3046	ECUM1H561JCN	C. CAPACITOR CH 50V 560P	1	
C3047	ECUM1H271JCN	C. CAPACITOR CH 50V 270P	1	
C3048	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C3050	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
C4001	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C4002	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4003	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C4004	ECUM1H182JCN	C. CAPACITOR CH 50V 1800P	1	
C4005	ECUM1H272KBN	C. CAPACITOR CH 50V 2700P	1	
C4006	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C4007	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C4009	ECUM1H183KBN	C. CAPACITOR CH 50V 0.018U	1	
C4010	ECUM1H153KBN	C. CAPACITOR CH 50V 0.015U	1	
C4011	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4012	VCEA0JCB470	E. CAPASITOR 6.3V 47U	1	
C4013	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C4014,15	VCEA1HCBR33	E. CAPACITOR 50V 0.33U	2	
C4016	ECKF1H102KB	C. CAPACITOR 50V 1000P	1	
C4018	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C4020	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C4021	ECQB1H223KF	P. CAPACITOR 50V 0.022U	1	
C4023	ECUM1H152KBN	C. CAPACITOR CH 50V 1500P	1	
C4028	ECEA0JKN470	E. CAPACITOR 6.3V 47U	1	
C4034	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C6003	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C6009-11	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	3	
C6012,13	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	2	
C6015	ECUM1H240JCN	C. CAPACITOR CH 50V 24P	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C6016	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	1	
C6017, 18	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	2	
C6019, 20	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2	
C6021	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C6023	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C6024	ECA0JHG471	E. CAPACITOR 6.3V 470U	1	
C6025	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C6031	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C6033	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C7501	VCEA1HCB100	E. CAPACITOR 50V 10U	1	
C7502	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7503	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7505	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C7603	ECUM1C224ZFN	C. CAPACITOR CH 16V 0.22U	1	
C7605	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7606	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7607	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7608	VCEA1HCB100	E. CAPACITOR 50V 10U	1	
C7609	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7611	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7612	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7613	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7616	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C7617	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7704	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7705	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7706	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C7707	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7708	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C7709	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
D1001	MA4051-M	DIODE	1	
D1002	1SS254	DIODE	1	
D1003	MA4120-M	DIODE	1	
D1004	1SS254	DIODE	1	
D1005	MA4051-L	DIODE	1	
D1006	1SS254	DIODE	1	
D1007	MA4150-M	DIODE	1	
D1011	1SS254	DIODE	1	
D2501	MA723VT	DIODE	1	
D6001-03	RB441P	DIODE	3	
D6004, 05	1SS254	DIODE	2	
D6006	SIR505STA47	DIODE	1	
D6008, 09	1SS254	DIODE	2	
D6011	1SS254	DIODE	1	
D6012, 13	MA4039	DIODE	2	
D7501	MA4200	DIODE	1	
D7601	MA4300M	DIODE	1	
D7602	MA4051-L	DIODE	1	
D7603	1SS254	DIODE	1	
DP7501	VSL0499	DISPLAY TUBE	1	
IC2501	AN3811NK	IC	1	
IC3001	TDA9735H	IC	1	
IC6001	PNA4611M02VT	IR RECEIVER UNIT	1	
IC6002	PST993D	IC	1	
IC6004, 05	RP1354N	IC	2	
IC6007	MN101D01GRB	IC	1	
IC7501	M35500AFP	IC	1	
⚠ IP1001, 02	UNH000300A	IC PROTECTOR	2	
JK3001	VJJ0558	RCA PIN JACK (4-PIN)	1	
K1003	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K3001	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4001	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4004	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4006	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7701	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
L2501	VLQ0599J680	COIL 68UH	1	
L3002	VLQ0599J390	COIL 39UH	1	
L3003	VLQ0599J121	COIL 120UH	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
L3004	VLQ0599J220	COIL 22UH	1	
L3005	VLQ0599J151	COIL 150UH	1	
L3006-11	VLQ0599J680	COIL 68UH	6	
L4001	VLQEL07F153J	COIL 15MH	1	
L4003	VLQ0599J121	COIL 120UH	1	
L6002	VLQ0599J220	COIL 22UH	1	
L7501	VLQ0599J220	COIL 22UH	1	
L7604-06	VLQ0599J330	COIL 33UH	3	
L7701	VLQ0599J680	COIL 68UH	1	
LB4001	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
LB6002	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
P1001	VJS3917A016W	CONNECTOR (FEMALE) 16P	1	
P2001	VJP3835A012	CONNECTOR (MALE) 12P	1	
P2501	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P3001	VJS3537A008G	CONNECTOR (FEMALE) 8P	1	
P4001	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P4002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
Q1001	2SC3940A	TRANSISTOR	1	
Q1002, 03	2SD1998	TRANSISTOR	2	
Q1004	MSD601-R	TRANSISTOR-RESISTOR	1	
Q1005	MSD1328-R	TRANSISTOR	1	
Q1006	2SD2139	TRANSISTOR	1	
Q1007	MSB710-R	TRANSISTOR	1	
Q1009	MSD602-R	TRANSISTOR	1	
Q3002	MSB709-R	TRANSISTOR-RESISTOR	1	
Q4001	MSD601-R	TRANSISTOR-RESISTOR	1	
Q4002	MSD602-R	TRANSISTOR	1	
Q4003	2SB1321	TRANSISTOR	1	
Q4005	2SD1149	TRANSISTOR	1	
Q4006	MSD601-R	TRANSISTOR-RESISTOR	1	
Q6001	PNB2301MBV	TRANSISTOR	1	
Q6002	PNB2301MAV	TRANSISTOR	1	
Q6003	MSD1328-R	TRANSISTOR	1	
Q7601	MSD1328-R	TRANSISTOR	1	
QR1011	MUN2112	TRANSISTOR-RESISTOR	1	
QR1012	MUN2111	TRANSISTOR-RESISTOR	1	
QR4001	MUN2113	TRANSISTOR-RESISTOR	1	
QR4004	MUN2111	TRANSISTOR-RESISTOR	1	
QR6001	MUN2211	TRANSISTOR-RESISTOR	1	
R1001	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1002	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1003	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1004	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R1005	ERJ6GMYJ124	M. RESISTOR CH 1/10W 120K	1	
R1006	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R1007	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1008	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1009	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R1010	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1011	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R1013, 14	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	2	
R1017	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1018, 19	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R1022	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R2001	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R2002	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R2003	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R2004	ERJ6GMYG393	M. RESISTOR CH 1/10W 39K	1	
R2501	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R2502, 03	ERDS2TJ330	C. RESISTOR 1/4W 33	2	
R2504	ERDS1TJ1R2	C. RESISTOR 1/2W 1.2	1	
R2505	ERDS2TJ391	C. RESISTOR 1/4W 390	1	
R2506	ERDS1TJ1R5	C. RESISTOR 1/2W 1.5	1	
R2507	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R3001	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R3004	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R3005	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R3007	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3008	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R3009	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	1	
R3011	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R3012	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	1	
R3013	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3017	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R3018	ERJ6GMYG301	M.RESISTOR CH 1/10W 300	1	
R3019	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R3022	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3023	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3024	ERJ6GMYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R3025	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R3026	ERJ6GMYK125	M.RESISTOR CH 1/10W 1.2M	1	
R3027	ERJ6GMYJ224	M.RESISTOR CH 1/10W 220K	1	
R3028	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3029	ERJ6GMYJ331	M.RESISTOR CH 1/10W 330	1	
R3030	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R3032	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R3033,34	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	2	
R3037	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R3039	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R3040	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R4001	ERJ6GMYJ334	M.RESISTOR CH 1/10W 330K	1	
R4002	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4003	ERJ6GMYJ241	M.RESISTOR CH 1/10W 240	1	
R4004	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R4005	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4006	ERJ6GMYJ163	M.RESISTOR CH 1/10W 16K	1	
R4008	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	1	
R4009	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	1	
R4011	ERJ6GMYK225	M.RESISTOR CH 1/10W 2.2M	1	
R4012	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R4013	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R4014	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R4015	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R4016	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4019	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4020	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R4023,24	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	2	
R4025	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R4026	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4030	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4031	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4032	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R4033	ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R4034	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6002	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R6003	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6004	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R6006,07	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	2	
R6008	ERDS2TJ181	C.RESISTOR 1/4W 180	1	
R6012	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6014-18	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	5	
R6020	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6021	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6022	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6023-27	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	5	
R6028	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R6029	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6030	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R6031	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R6032	ERJ6GMYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R6033	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R6034	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6035	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6039	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6041	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R6042	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6044	ERDS2TJ121	C.RESISTOR 1/4W 120	1	
R6045	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R6050,51	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	2	
R6052	ERJ6GMYJ331	M.RESISTOR CH 1/10W 330	1	
R6053	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6055	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7505	ERJ6GMYJ203	M.RESISTOR CH 1/10W 20K	1	
R7506	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R7507	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R7508	ERJ6GMYJ243	M.RESISTOR CH 1/10W 24K	1	
R7512,13	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	2	
R7514	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7515	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R7516,17	ERJ6GMYJ202	M.RESISTOR CH 1/10W 2K	2	
R7518	ERDS2TJ6R8	C.RESISTOR 1/4W 6.8	1	
R7519-21	ERJ6GMYJ682	M.RESISTOR CH 1/10W 6.8K	3	
R7522,23	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	2	
R7524	ERJ6GMYJ243	M.RESISTOR CH 1/10W 24K	1	
R7525	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7526	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R7527	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R7528,29	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	2	
R7530,31	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	2	
R7601,02	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	2	
R7605,06	ERG2SJ331	M.RESISTOR 2W 330	2	
R7608	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7609	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R7611-14	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	4	
R7705	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7708	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
S6001	VES0834	S-TAB SWITCH	1	
S6002	VSS0520	MODE SELECT SWITCH	1	
S7501,02	EVQ11L07B	SWITCH	2	
S7505-08	EVQ11L07B	SWITCH	4	
T4002	VLT0895	TRANSFORMER	1	
⚠ TU7601	ENG57571G1	TUNER	1	[SUPPLIED FROM MAV]
X3001	VSX0162	CRYSTAL OSCILLATOR	1	
X6001	VSX1022	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
X6002	VSX1021	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
		MISCELLANEOUS		
	VXQ0848	FIP HOLDER	1	
■	VEP06C53Q	MAIN C.B.A.		[SUPPLIED FROM MAV]
				(RTL) NV-SD230A
B6001	CR2354-1GUF	LITHIUM BATTERY	1	
C1001	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1002	VCEA0JCB220	E.CAPASITOR 6.3V 22U	1	
C1003	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C1004	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1005	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C1007	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1008	VCEA0JBS470	E.CAPASITOR 6.3V 47U	1	
C1010	VCEA0JCB331	E.CAPASITOR 6.3V 330U	1	
C1012	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1013	VCEA1ECB220	E.CAPACITOR 25V 22U	1	
C1014	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C1015	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C2001	VCEA1CBB100	E.CAPACITOR 16V 10U	1	
C2006	ECUM1C474KBN	C.CAPACITOR CH 16V 0.47U	1	
C2008	ECUM1H392KBN	C.CAPACITOR CH 50V 3900P	1	
C2010	VCEA1HCB4R7	E.CAPACITOR 50V 4.7U	1	
C2011	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C2012	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2013	VCEA1HCB3R3	E.CAPACITOR 50V 3.3U	1	
C2501,02	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	2	
C2503	VCEA1VBB4R7	E.CAPACITOR 35V 4.7U	1	
C2504	VCEA1ECB470	E.CAPACITOR 25V 47U	1	
C2505	VCEA1VBB4R7	E.CAPACITOR 35V 4.7U	1	
C2506	VCEA0JCB221	E.CAPASITOR 6.3V 220U	1	
C2507	ECUM1H473ZFN	C.CAPACITOR CH 50V 0.047U	1	
C2508	ECUM1E683KBN	C.CAPACITOR CH 25V 0.068U	1	
C2509-11	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	3	
C2512	VCEA1VBB4R7	E.CAPACITOR 35V 4.7U	1	
C3001	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C3003	VCEA0JEC471	E.CAPASITOR 6.3V 470U	1	
C3004	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3005	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3006	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C3007	ECUM1H821JCN	C. CAPACITOR CH 50V 820P	1	
C3008	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3009	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3010	ECUM1H680JCN	C. CAPACITOR CH 50V 68P	1	
C3011	ECUM1H100DCN	C. CAPACITOR CH 50V 10P	1	
C3012	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3013	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3014	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3015	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3016	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3017	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3018	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C3019	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3020	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C3021	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3022	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3024	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C3026	VCEA1HCB3R3	E. CAPACITOR 50V 3.3U	1	
C3028	VCEA0JCB470	E. CAPASITOR 6.3V 47U	1	
C3029	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3030	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C3031	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C3032	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3033	VCEA1HCBR47	E. CAPACITOR 50V 0.47U	1	
C3034	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3036	ECUM1H560JCN	C. CAPACITOR CH 50V 56P	1	
C3037	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C3038	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3039	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3040	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C3041	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3042	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3043	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C3044	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C3045	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3046	ECUM1H561JCN	C. CAPACITOR CH 50V 560P	1	
C3047	ECUM1H271JCN	C. CAPACITOR CH 50V 270P	1	
C3048	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C3050	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
C4001	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C4002	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4003	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C4004	ECUM1H182JCN	C. CAPACITOR CH 50V 1800P	1	
C4005	ECUM1H272KBN	C. CAPACITOR CH 50V 2700P	1	
C4006	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C4007	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C4008	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4009	ECUM1H273KBN	C. CAPACITOR CH 50V 0.027U	1	
C4010	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4011	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4012	VCEA0JCB470	E. CAPASITOR 6.3V 47U	1	
C4013	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C4014, 15	VCEA1HCBR33	E. CAPACITOR 50V 0.33U	2	
C4016	ECKF1H102KB	C. CAPACITOR 50V 1000P	1	
C4018	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C4020	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C4021	ECQB1H223KF	P. CAPACITOR 50V 0.022U	1	
C4023	ECUM1H152KBN	C. CAPACITOR CH 50V 1500P	1	
C4028	ECEA0JKN470	E. CAPACITOR 6.3V 47U	1	
C4034	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C6003	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C6009-11	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	3	
C6012, 13	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	2	
C6015	ECUM1H240JCN	C. CAPACITOR CH 50V 24P	1	
C6016	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	1	
C6017, 18	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	2	
C6019, 20	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2	
C6021	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C6023	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C6024	ECA0JHG471	E. CAPACITOR 6.3V 470U	1	
C6025	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C6031	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C6033	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7501	VCEA1HCB100	E. CAPACITOR 50V 10U	1	
C7502	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7503	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7505	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C7605	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7606	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7607	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7608	VCEA1HCB100	E. CAPACITOR 50V 10U	1	
C7609	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7611	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7612	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7613	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7616	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C7617	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7704	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7705	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7706	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C7707	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7708	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C7709	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
D1001	MA4051-M	DIODE	1	
D1002	1SS254	DIODE	1	
D1003	MA4120-M	DIODE	1	
D1004	1SS254	DIODE	1	
D1005	MA4051-L	DIODE	1	
D1006	1SS254	DIODE	1	
D1007	MA4150-M	DIODE	1	
D1011	1SS254	DIODE	1	
D2501	MA723VT	DIODE	1	
D6001-03	RB441P	DIODE	3	
D6004, 05	1SS254	DIODE	2	
D6006	SIR505STA47	DIODE	1	
D6008, 09	1SS254	DIODE	2	
D6011	1SS254	DIODE	1	
D6012, 13	MA4039	DIODE	2	
D7501	MA4200	DIODE	1	
D7601	MA4300M	DIODE	1	
D7602	MA4051-L	DIODE	1	
D7603	1SS254	DIODE	1	
DP7501	VSL0499	DISPLAY TUBE	1	
IC2501	AN3811NK	IC	1	
IC3001	TDA9735H	IC	1	
IC6001	PNA4611M02VT	IR RECEIVER UNIT	1	
IC6002	PST993D	IC	1	
IC6004, 05	RP1354N	IC	2	
IC6007	MN101D01GRB	IC	1	
IC7501	M35500AFP	IC	1	
⚠ IP1001, 02	UNH000300A	IC PROTECTOR	2	
JK3001	VJJ0558	RCA PIN JACK (4-PIN)	1	
K1003	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K3001	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K4001	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K4004	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K4006	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K7701	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
L2501	VLQ0599J680	COIL 68UH	1	
L3002	VLQ0599J390	COIL 39UH	1	
L3003	VLQ0599J121	COIL 120UH	1	
L3004	VLQ0599J220	COIL 22UH	1	
L3005	VLQ0599J151	COIL 150UH	1	
L3006-11	VLQ0599J680	COIL 68UH	6	
L4001	VLQEL07F153J	COIL 15MH	1	
L4003	VLQ0599J121	COIL 120UH	1	
L6002	VLQ0599J220	COIL 22UH	1	
L7501	VLQ0599J220	COIL 22UH	1	
L7604-06	VLQ0599J330	COIL 33UH	3	
L7701	VLQ0599J680	COIL 68UH	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
LB4001	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
LB6002	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
P1001	VJS3917A016W	CONNECTOR (FEMALE) 16P	1	
P2001	VJP3835A012	CONNECTOR (MALE) 12P	1	
P2501	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P3001	VJS3537A008G	CONNECTOR (FEMALE) 8P	1	
P4001	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P4002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6003	VJS3905	DEW SENSOR CONNECTOR	1	
Q1001	2SC3940A	TRANSISTOR	1	
Q1002, 03	2SD1996	TRANSISTOR	2	
Q1004	MSD601-R	TRANSISTOR-RESISTOR	1	
Q1005	MSD1328-R	TRANSISTOR	1	
Q1006	2SD2139	TRANSISTOR	1	
Q1007	MSB710-R	TRANSISTOR	1	
Q1009	MSD602-R	TRANSISTOR	1	
Q3002	MSB709-R	TRANSISTOR-RESISTOR	1	
Q4001	MSD601-R	TRANSISTOR-RESISTOR	1	
Q4002	MSD602-R	TRANSISTOR	1	
Q4003	2SB1321	TRANSISTOR	1	
Q4005	2SD1149	TRANSISTOR	1	
Q4006	MSD601-R	TRANSISTOR-RESISTOR	1	
Q6001	PNB2301MBV	TRANSISTOR	1	
Q6002	PNB2301MAV	TRANSISTOR	1	
Q6003	MSD1328-R	TRANSISTOR	1	
Q7601	MSD1328-R	TRANSISTOR	1	
QR1011	MUN2112	TRANSISTOR-RESISTOR	1	
QR1012	MUN2111	TRANSISTOR-RESISTOR	1	
QR4001	MUN2113	TRANSISTOR-RESISTOR	1	
QR4004	MUN2111	TRANSISTOR-RESISTOR	1	
QR6001	MUN2211	TRANSISTOR-RESISTOR	1	
R1001	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1002	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1003	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1004	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R1005	ERJ6GMYJ124	M. RESISTOR CH 1/10W 120K	1	
R1006	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R1007	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1008	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1009	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R1010	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1011	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R1013, 14	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	2	
R1017	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1018, 19	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R1022	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R2001	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R2002	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R2003	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R2004	ERJ6GMYG393	M. RESISTOR CH 1/10W 39K	1	
R2501	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R2502, 03	ERDS2TJ330	C. RESISTOR 1/4W 33	2	
R2504	ERDS1TJ1R2	C. RESISTOR 1/2W 1.2	1	
R2505	ERDS2TJ391	C. RESISTOR 1/4W 390	1	
R2506	ERDS1TJ1R5	C. RESISTOR 1/2W 1.5	1	
R2507	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R3001	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R3004	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R3005	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R3007	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3008	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3009	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3011	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3012	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R3013	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3017	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R3018	ERJ6GMYG301	M. RESISTOR CH 1/10W 300	1	
R3019	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R3022	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3023	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3024	ERJ6GMYJ122	M. RESISTOR CH 1/10W 1.2K	1	
R3025	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3026	ERJ6GMYK125	M. RESISTOR CH 1/10W 1.2M	1	
R3027	ERJ6GMYJ224	M. RESISTOR CH 1/10W 220K	1	
R3028	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3029	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R3030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3032	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3033, 34	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
R3037	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R3039	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R3040	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4001	ERJ6GMYJ334	M. RESISTOR CH 1/10W 330K	1	
R4002	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4003	ERJ6GMYJ241	M. RESISTOR CH 1/10W 240	1	
R4004	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R4005	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4006	ERJ6GMYJ163	M. RESISTOR CH 1/10W 16K	1	
R4007	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4008	ERJ6GMYJ391	M. RESISTOR CH 1/10W 390	1	
R4009	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R4011	ERJ6GMYK225	M. RESISTOR CH 1/10W 2.2M	1	
R4012	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R4013	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R4014	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R4015	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4016	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4019	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4020	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R4023, 24	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	2	
R4025	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4026	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4031	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4032	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	1	
R4033	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	1	
R4034	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6002	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R6003	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6004	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6006, 07	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	2	
R6008	ERDS2TJ181	C. RESISTOR 1/4W 180	1	
R6012	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6014-18	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	5	
R6020	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6021	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6022	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6023-27	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	5	
R6028	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R6029	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R6030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6031	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R6032	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R6033	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R6034	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6035	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6039	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6041	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6043	ERJ6GMYJ244	M. RESISTOR CH 1/10W 240K	1	
R6044	ERDS2TJ121	C. RESISTOR 1/4W 120	1	
R6045	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R6050, 51	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	2	
R6052	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R6053	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6055	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R7505	ERJ6GMYJ203	M. RESISTOR CH 1/10W 20K	1	
R7506	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7507	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7508	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R7512, 13	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	2	
R7514	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7515	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R7516, 17	ERJ6GMYJ202	M. RESISTOR CH 1/10W 2K	2	
R7518	ERDS2TJ6R8	C. RESISTOR 1/4W 6.8	1	
R7519-21	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	3	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R7522,23	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	2	
R7524	ERJ6GMYJ243	M.RESISTOR CH 1/10W 24K	1	
R7525	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7526	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R7527	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R7528,29	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	2	
R7530,31	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	2	
R7601	ERJ6GMYJ151	M.RESISTOR CH 1/10W 150	1	
R7602	ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R7603	ERJ6GMYJ151	M.RESISTOR CH 1/10W 150	1	
R7604	ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R7605,06	ERG2SJ331	M.RESISTOR 2W 330	2	
R7608	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7609	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R7611-14	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	4	
R7705	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7708	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
S6001	VESO834	S-TAB SWITCH	1	
S6002	VSSO520	MODE SELECT SWITCH	1	
S7501,02	EVQ11L07B	SWITCH	2	
S7505-08	EVQ11L07B	SWITCH	4	
T4002	VLTO895	TRANSFORMER	1	
⚠ TU7601	ENG57569G1	TUNER	1	[SUPPLIED FROM MAV]
X3001	VSX0162	CRYSTAL OSCILLATOR	1	
X3002	VSX0160	CRYSTAL OSCILLATOR	1	
X6001	VSX1022	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
X6002	VSX1021	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
		MISCELLANEOUS		
	VXQ0648	FIP HOLDER	1	
■	VEP06C53P	MAIN C.B.A.		[SUPPLIED FROM MAV]
				(RTL) NV-SD280A
B6001	CR2354-1GUF	LITHIUM BATTERY	1	
C1001	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1002	VCEA0JCB220	E.CAPASITOR 6.3V 22U	1	
C1003	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C1004	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1005	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C1007	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1008	VCEA0JBS470	E.CAPASITOR 6.3V 47U	1	
C1010	VCEA0JCB331	E.CAPASITOR 6.3V 330U	1	
C1012	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1013	VCEA1ECB220	E.CAPACITOR 25V 22U	1	
C1014	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C1015	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C2001	VCEA1CBB100	E.CAPACITOR 16V 10U	1	
C2006	ECUM1C474KBN	C.CAPACITOR CH 16V 0.47U	1	
C2008	ECUM1H392KBN	C.CAPACITOR CH 50V 3900P	1	
C2010	VCEA1HCB4R7	E.CAPACITOR 50V 4.7U	1	
C2011	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C2012	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2013	VCEA1HCB3R3	E.CAPACITOR 50V 3.3U	1	
C2501,02	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	2	
C2503	VCEA1VBB4R7	E.CAPACITOR 35V 4.7U	1	
C2504	VCEA1ECB470	E.CAPACITOR 25V 47U	1	
C2505	VCEA1VBB4R7	E.CAPACITOR 35V 4.7U	1	
C2506	VCEA0JCB221	E.CAPASITOR 6.3V 220U	1	
C2507	ECUM1H473ZFN	C.CAPACITOR CH 50V 0.047U	1	
C2508	ECUM1E683KBN	C.CAPACITOR CH 25V 0.068U	1	
C2509-11	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	3	
C2512	VCEA1VBB4R7	E.CAPACITOR 35V 4.7U	1	
C3001	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C3003	VCEA0JEC471	E.CAPASITOR 6.3V 470U	1	
C3004	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	
C3005	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3006	ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C3007	ECUM1H821JCN	C.CAPACITOR CH 50V 820P	1	
C3008	VCEA1HCB010	E.CAPACITOR 50V 1U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C3009	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3010	ECUM1H680JCN	C.CAPACITOR CH 50V 68P	1	
C3011	ECUM1H100DCN	C.CAPACITOR CH 50V 10P	1	
C3012	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3013	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3014	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3015	VCEA0JCB221	E.CAPASITOR 6.3V 220U	1	
C3016	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3017	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C3018	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C3019	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3020	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C3021	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3022	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C3024	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C3026	VCEA1HCB3R3	E.CAPACITOR 50V 3.3U	1	
C3028	VCEA0JCB470	E.CAPASITOR 6.3V 47U	1	
C3029	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3030	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C3031	VCEA0JCB220	E.CAPASITOR 6.3V 22U	1	
C3032	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3033	VCEA1HCBR47	E.CAPACITOR 50V 0.47U	1	
C3034	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C3036	ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C3037	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3038	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3039	VCEA0JCB221	E.CAPASITOR 6.3V 220U	1	
C3040	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3041	VCEA0JCB221	E.CAPASITOR 6.3V 220U	1	
C3042	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3043	VCEA0JCB220	E.CAPASITOR 6.3V 22U	1	
C3044	ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C3045	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C3046	ECUM1H561JCN	C.CAPACITOR CH 50V 560P	1	
C3047	ECUM1H271JCN	C.CAPACITOR CH 50V 270P	1	
C3048	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C3050	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
C4001	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C4002	ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4003	VCEA0JCB220	E.CAPASITOR 6.3V 22U	1	
C4004	ECUM1H182JCN	C.CAPACITOR CH 50V 1800P	1	
C4005	ECUM1H272KBN	C.CAPACITOR CH 50V 2700P	1	
C4006	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C4007	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C4008	ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4009	ECUM1H273KBN	C.CAPACITOR CH 50V 0.027U	1	
C4010	ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4011	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4012	VCEA0JCB470	E.CAPASITOR 6.3V 47U	1	
C4013	VCEA0JCB220	E.CAPASITOR 6.3V 22U	1	
C4014,15	VCEA1HCBR33	E.CAPACITOR 50V 0.33U	2	
C4016	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C4018	ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C4020	VCEA0JCB221	E.CAPASITOR 6.3V 220U	1	
C4021	ECQB1H223KF	P.CAPACITOR 50V 0.022U	1	
C4023	ECUM1H152KBN	C.CAPACITOR CH 50V 1500P	1	
C4028	ECEA0JKN470	E.CAPACITOR 6.3V 47U	1	
C4034	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C6003	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6009-11	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	3	
C6012,13	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
C6015	ECUM1H240JCN	C.CAPACITOR CH 50V 24P	1	
C6016	ECUM1H270JCN	C.CAPACITOR CH 50V 27P	1	
C6017,18	ECUM1H150JCN	C.CAPACITOR CH 50V 15P	2	
C6019,20	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	2	
C6021	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C6023	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6024	ECA0JHG471	E.CAPACITOR 6.3V 470U	1	
C6025	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C6031	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C6033	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C7501	VCEA1HCB100	E.CAPACITOR 50V 10U	1	
C7502	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7503	VCEA0JCB101	E.CAPASITOR 6.3V 100U	1	
C7505	ECUM1H470JCN	C.CAPACITOR CH 50V 47P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7605	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7606	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7607	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7608	VCEA1HCB100	E. CAPACITOR 50V 10U	1	
C7609	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7611	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7612	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7613	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7616	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C7617	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7704	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7705	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7706	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C7707	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7708	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C7709	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
D1001	MA4051-M	DIODE	1	
D1002	1SS254	DIODE	1	
D1003	MA4120-M -	DIODE	1	
D1004	1SS254	DIODE	1	
D1005	MA4051-L	DIODE	1	
D1006	1SS254	DIODE	1	
D1007	MA4150-M	DIODE	1	
D1011	1SS254	DIODE	1	
D2501	MA723VT	DIODE	1	
D6001-03	RB441P	DIODE	3	
D6004, 05	1SS254	DIODE	2	
D6006	SIR505STA47	DIODE	1	
D6008, 09	1SS254	DIODE	2	
D6011	1SS254	DIODE	1	
D6012, 13	MA4039	DIODE	2	
D7501	MA4200	DIODE	1	
D7601	MA4300M	DIODE	1	
D7602	MA4051-L	DIODE	1	
D7603	1SS254	DIODE	1	
DP7501	VSL0499	DISPLAY TUBE	1	
IC2501	AN3811NK	IC	1	
IC3001	TDA9735H	IC	1	
IC6001	PNA4611M02VT	IR RECEIVER UNIT	1	
IC6002	PST993D	IC	1	
IC6004, 05	RPI354N	IC	2	
IC6007	MN101D01GRB	IC	1	
IC7501	M35500AFP	IC	1	
⚠ IP1001, 02	UNH000300A	IC PROTECTOR	2	
JK3001	VJJ0558	RCA PIN JACK (4-PIN)	1	
K1003	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K3001	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K4001	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K4004	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K4006	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
K7701	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
L2501	VLQ0599J680	COIL 68UH	1	
L3002	VLQ0599J390	COIL 39UH	1	
L3003	VLQ0599J121	COIL 120UH	1	
L3004	VLQ0599J220	COIL 22UH	1	
L3005	VLQ0599J151	COIL 150UH	1	
L3006-11	VLQ0599J680	COIL 68UH	6	
L4001	VLQEL07F153J	COIL 15MH	1	
L4003	VLQ0599J121	COIL 120UH	1	
L6002	VLQ0599J220	COIL 22UH	1	
L7501	VLQ0599J220	COIL 22UH	1	
L7604-06	VLQ0599J330	COIL 33UH	3	
L7701	VLQ0599J680	COIL 68UH	1	
LB4001	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
LB6002	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
P1001	VJS3917A016W	CONNECTOR (FEMALE) 16P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
P2001	VJP3835A012	CONNECTOR (MALE) 12P	1	
P2501	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P3001	VJS3537A008G	CONNECTOR (FEMALE) 8P	1	
P4001	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P4002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6003	VJS3905	DEW SENSOR CONNECTOR	1	
Q1001	2SC3940A	TRANSISTOR	1	
Q1002, 03	2SD1996	TRANSISTOR	2	
Q1004	MSD601-R	TRANSISTOR-RESISTOR	1	
Q1005	MSD1328-R	TRANSISTOR	1	
Q1006	2SD2139	TRANSISTOR	1	
Q1007	MSB710-R	TRANSISTOR	1	
Q1009	MSD602-R	TRANSISTOR	1	
Q3002	MSB709-R	TRANSISTOR-RESISTOR	1	
Q4001	MSD601-R	TRANSISTOR-RESISTOR	1	
Q4002	MSD602-R	TRANSISTOR	1	
Q4003	2SB1321	TRANSISTOR	1	
Q4005	2SD1149	TRANSISTOR	1	
Q4006	MSD601-R	TRANSISTOR-RESISTOR	1	
Q6001	PNB2301MBV	TRANSISTOR	1	
Q6002	PNB2301MAV	TRANSISTOR	1	
Q6003	MSD1328-R	TRANSISTOR	1	
Q7601	MSD1328-R	TRANSISTOR	1	
QR1011	MUN2112	TRANSISTOR-RESISTOR	1	
QR1012	MUN2111	TRANSISTOR-RESISTOR	1	
QR4001	MUN2113	TRANSISTOR-RESISTOR	1	
QR4004	MUN2111	TRANSISTOR-RESISTOR	1	
QR6001	MUN2211	TRANSISTOR-RESISTOR	1	
R1001	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1002	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1003	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1004	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R1005	ERJ6GMYJ124	M. RESISTOR CH 1/10W 120K	1	
R1006	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R1007	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1008	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1009	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R1010	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1011	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R1013, 14	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	2	
R1017	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1018, 19	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R1022	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R2001	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R2002	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R2003	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R2004	ERJ6GMYG393	M. RESISTOR CH 1/10W 39K	1	
R2501	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R2502, 03	ERDS2TJ330	C. RESISTOR 1/4W 33	2	
R2504	ERDS1TJ1R2	C. RESISTOR 1/2W 1.2	1	
R2505	ERDS2TJ391	C. RESISTOR 1/4W 390	1	
R2506	ERDS1TJ1R5	C. RESISTOR 1/2W 1.5	1	
R2507	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R3001	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R3004	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R3005	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R3007	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3008	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3009	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3011	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3012	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R3013	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3017	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R3018	ERJ6GMYG301	M. RESISTOR CH 1/10W 300	1	
R3019	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R3022	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3023	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R3024	ERJ6GMYJ122	M. RESISTOR CH 1/10W 1.2K	1	
R3025	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3026	ERJ6GMYK125	M. RESISTOR CH 1/10W 1.2M	1	
R3027	ERJ6GMYJ224	M. RESISTOR CH 1/10W 220K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3028	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3029	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R3030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3032	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3033, 34	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
R3037	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R3039	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R3040	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4001	ERJ6GMYJ334	M. RESISTOR CH 1/10W 330K	1	
R4002	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4003	ERJ6GMYJ241	M. RESISTOR CH 1/10W 240	1	
R4004	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R4005	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4006	ERJ6GMYJ163	M. RESISTOR CH 1/10W 16K	1	
R4007	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4008	ERJ6GMYJ391	M. RESISTOR CH 1/10W 390	1	
R4009	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R4011	ERJ6GMYK225	M. RESISTOR CH 1/10W 2.2M	1	
R4012	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R4013	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R4014	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R4015	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4016	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4019	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4020	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R4023, 24	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	2	
R4025	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4026	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4031	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4032	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	1	
R4033	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	1	
R4034	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6002	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R6003	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6004	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6006, 07	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	2	
R6008	ERDS2TJ181	C. RESISTOR 1/4W 180	1	
R6012	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6014-18	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	5	
R6020	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6021	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6022	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6023-27	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	5	
R6028	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R6029	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R6030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6031	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R6032	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R6033	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R6034	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6035	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6039	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6041	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6043	ERJ6GMYJ244	M. RESISTOR CH 1/10W 240K	1	
R6044	ERDS2TJ121	C. RESISTOR 1/4W 120	1	
R6045	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R6050, 51	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	2	
R6052	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R6053	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6055	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R7505	ERJ6GMYJ203	M. RESISTOR CH 1/10W 20K	1	
R7506	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R7507	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7508	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R7512, 13	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	2	
R7514	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7515	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R7516, 17	ERJ6GMYJ202	M. RESISTOR CH 1/10W 2K	2	
R7518	ERDS2TJ6R8	C. RESISTOR 1/4W 6.8	1	
R7519-21	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	3	
R7522, 23	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	2	
R7524	ERJ6GMYJ243	M. RESISTOR CH 1/10W 24K	1	
R7525	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7526	ERJ6GMYJ333	M. RESISTOR CH 1/10W 33K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R7527	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7528, 29	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R7530, 31	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R7601	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R7602	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	1	
R7603	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R7604	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	1	
R7605, 06	ERG2SJ331	M. RESISTOR 2W 330	2	
R7608	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R7609	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R7611-14	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	4	
R7705	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7708	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
S6001	VESO834	S-TAB SWITCH	1	
S6002	VSS0520	MODE SELECT SWITCH	1	
S7501, 02	EVQ11L07B	SWITCH	2	
S7505-08	EVQ11L07B	SWITCH	4	
T4002	VLT0895	TRANSFORMER	1	
⚠ TU7601	ENG57569G1	TUNER	1	[SUPPLIED FROM MAV]
X3001	VSX0162	CRYSTAL OSCILLATOR	1	
X3002	VSX0160	CRYSTAL OSCILLATOR	1	
X6001	VSX1022	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
X6002	VSX1021	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
		MISCELLANEOUS		
	VXQ0648	FIP HOLDER	1	
■	VEP06C53Q	MAIN C.B.A.		[SUPPLIED FROM MAV]
				(RTL) NV-SD280EA
B6001	CR2354-1GUF	LITHIUM BATTERY	1	
C1001	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1002	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C1003	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C1004	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1005	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C1007	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1008	VCEA0JBS470	E. CAPASITOR 6.3V 47U	1	
C1010	VCEA0JCB331	E. CAPASITOR 6.3V 330U	1	
C1012	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1013	VCEA1ECB220	E. CAPACITOR 25V 22U	1	
C1014	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C1015	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C2001	VCEA1CBB100	E. CAPACITOR 16V 10U	1	
C2006	ECUM1C474KBN	C. CAPACITOR CH 16V 0.47U	1	
C2008	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1	
C2010	VCEA1HCB4R7	E. CAPACITOR 50V 4.7U	1	
C2011	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C2012	ECUM1E563KBN	C. CAPACITOR CH 25V 0.056U	1	
C2013	VCEA1HCB3R3	E. CAPACITOR 50V 3.3U	1	
C2501, 02	ECUM1E563KBN	C. CAPACITOR CH 25V 0.056U	2	
C2503	VCEA1VBB4R7	E. CAPACITOR 35V 4.7U	1	
C2504	VCEA1ECB470	E. CAPACITOR 25V 47U	1	
C2505	VCEA1VBB4R7	E. CAPACITOR 35V 4.7U	1	
C2506	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C2507	ECUM1H473ZFN	C. CAPACITOR CH 50V 0.047U	1	
C2508	ECUM1E683KBN	C. CAPACITOR CH 25V 0.068U	1	
C2509-11	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	3	
C2512	VCEA1VBB4R7	E. CAPACITOR 35V 4.7U	1	
C3001	VCEA1CCB470	E. CAPACITOR 16V 47U	1	
C3003	VCEA0JEC471	E. CAPASITOR 6.3V 470U	1	
C3004	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C3005	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3006	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C3007	ECUM1H821JCN	C. CAPACITOR CH 50V 820P	1	
C3008	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3009	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3010	ECUM1H680JCN	C. CAPACITOR CH 50V 68P	1	
C3011	ECUM1H100DCN	C. CAPACITOR CH 50V 10P	1	
C3012	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3013	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3014	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3015	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3016	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3017	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C3018	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C3019	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3020	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C3021	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C3022	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3024	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C3026	VCEA1HCB3R3	E. CAPACITOR 50V 3.3U	1	
C3028	VCEA0JCB470	E. CAPASITOR 6.3V 47U	1	
C3029	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3030	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C3031	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C3032	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C3033	VCEA1HCBR47	E. CAPACITOR 50V 0.47U	1	
C3034	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3036	ECUM1H560JCN	C. CAPACITOR CH 50V 56P	1	
C3037	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C3038	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3039	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3040	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C3041	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C3042	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C3043	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C3044	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C3045	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C3046	ECUM1H561JCN	C. CAPACITOR CH 50V 560P	1	
C3047	ECUM1H271JCN	C. CAPACITOR CH 50V 270P	1	
C3048	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C3050	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
C4001	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C4002	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4003	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C4004	ECUM1H182JCN	C. CAPACITOR CH 50V 1800P	1	
C4005	ECUM1H272KBN	C. CAPACITOR CH 50V 2700P	1	
C4006	VCEA1HCB010	E. CAPACITOR 50V 1U	1	
C4007	VCEA1ECB4R7	E. CAPACITOR 25V 4.7U	1	
C4008	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4009	ECUM1H273KBN	C. CAPACITOR CH 50V 0.027U	1	
C4010	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4011	VCEA1CCB100	E. CAPACITOR 16V 10U	1	
C4012	VCEA0JCB470	E. CAPASITOR 6.3V 47U	1	
C4013	VCEA0JCB220	E. CAPASITOR 6.3V 22U	1	
C4014, 15	VCEA1HCBR33	E. CAPACITOR 50V 0.33U	2	
C4016	ECKF1H102KB	C. CAPACITOR 50V 1000P	1	
C4018	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C4020	VCEA0JCB221	E. CAPASITOR 6.3V 220U	1	
C4021	ECQB1H223KF	P. CAPACITOR 50V 0.022U	1	
C4023	ECUM1H152KBN	C. CAPACITOR CH 50V 1500P	1	
C4028	ECEA0JKN470	E. CAPACITOR 6.3V 47U	1	
C4034	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C6003	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C6009-11	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	3	
C6012, 13	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	2	
C6015	ECUM1H240JCN	C. CAPACITOR CH 50V 24P	1	
C6016	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	1	
C6017, 18	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	2	
C6019, 20	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2	
C6021	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C6023	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C6024	ECA0JHG471	E. CAPACITOR 6.3V 470U	1	
C6025	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C6031	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C6033	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C7501	VCEA1HCB100	E. CAPACITOR 50V 10U	1	
C7502	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7503	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7505	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C7605	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7607	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7608	VCEA1HCB100	E. CAPACITOR 50V 10U	1	
C7609	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7611	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7612	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7613	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7704	VCEA0JCB101	E. CAPASITOR 6.3V 100U	1	
C7705	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7706	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C7707	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7708	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C7709	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
D1001	MA4051-M	DIODE	1	
D1002	1SS254	DIODE	1	
D1003	MA4120-M	DIODE	1	
D1004	1SS254	DIODE	1	
D1005	MA4051-L	DIODE	1	
D1006	1SS254	DIODE	1	
D1007	MA4150-M	DIODE	1	
D1011	1SS254	DIODE	1	
D2501	MA723VT	DIODE	1	
D6001-03	RB441P	DIODE	3	
D6004, 05	1SS254	DIODE	2	
D6006	SIR505STA47	DIODE	1	
D6008, 09	1SS254	DIODE	2	
D6011	1SS254	DIODE	1	
D6012, 13	MA4039	DIODE	2	
D7501	MA4200	DIODE	1	
D7601	MA4300M	DIODE	1	
DP7501	VSL0499	DISPLAY TUBE	1	
IC2501	AN3811NK	IC	1	
IC3001	TDA9735H	IC	1	
IC6001	PNA4611M02VT	IR RECEIVER UNIT	1	
IC6002	PST993D	IC	1	
IC6004, 05	RP1354N	IC	2	
IC6007	MN101D01GRB	IC	1	
IC7501	M35500AFP	IC	1	
⚠ IP1001, 02	UNH000300A	IC PROTECTOR	2	
JK3001	VJJ0558	RCA PIN JACK (4-PIN)	1	
K1003	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K3001	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4001	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4004	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K4006	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7605	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7701	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
L2501	VLQ0599J680	COIL 68UH	1	
L3002	VLQ0599J390	COIL 39UH	1	
L3003	VLQ0599J121	COIL 120UH	1	
L3004	VLQ0599J220	COIL 22UH	1	
L3005	VLQ0599J151	COIL 150UH	1	
L3006-11	VLQ0599J680	COIL 68UH	6	
L4001	VLQEL07F153J	COIL 15MH	1	
L4003	VLQ0599J121	COIL 120UH	1	
L6002	VLQ0599J220	COIL 22UH	1	
L7501	VLQ0599J220	COIL 22UH	1	
L7604-06	VLQ0599J330	COIL 33UH	3	
L7701	VLQ0599J680	COIL 68UH	1	
LB4001	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
LB6002	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
P1001	VJS3917A016W	CONNECTOR (FEMALE) 16P	1	
P2001	VJP3835A012	CONNECTOR (MALE) 12P	1	
P2501	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P3001	VJS3537A008G	CONNECTOR (FEMALE) 8P	1	
P4001	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P4002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6003	VJS3905	DEW SENSOR CONNECTOR	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
Q1001	2SC3940A	TRANSISTOR	1	
Q1002, 03	2SD1996	TRANSISTOR	2	
Q1004	MSD601-R	TRANSISTOR-RESISTOR	1	
Q1005	MSD1328-R	TRANSISTOR	1	
Q1006	2SD2139	TRANSISTOR	1	
Q1007	MSB710-R	TRANSISTOR	1	
Q1009	MSD602-R	TRANSISTOR	1	
Q3002	MSB709-R	TRANSISTOR-RESISTOR	1	
Q4001	MSD601-R	TRANSISTOR-RESISTOR	1	
Q4002	MSD602-R	TRANSISTOR	1	
Q4003	2SB1321	TRANSISTOR	1	
Q4005	2SD1149	TRANSISTOR	1	
Q4006	MSD601-R	TRANSISTOR-RESISTOR	1	
Q6001	PNB2301MBV	TRANSISTOR	1	
Q6002	PNB2301MAV	TRANSISTOR	1	
Q6003	MSD1328-R	TRANSISTOR	1	
QR1011	MUN2112	TRANSISTOR-RESISTOR	1	
QR1012	MUN2111	TRANSISTOR-RESISTOR	1	
QR4001	MUN2113	TRANSISTOR-RESISTOR	1	
QR4004	MUN2111	TRANSISTOR-RESISTOR	1	
QR6001	MUN2211	TRANSISTOR-RESISTOR	1	
QR7602	MUN2213	TRANSISTOR-RESISTOR	1	
R1001	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1002	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1003	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1004	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R1005	ERJ6GMYJ124	M. RESISTOR CH 1/10W 120K	1	
R1006	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R1007	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1008	ERDS2TJ222	C. RESISTOR 1/4W 2.2K	1	
R1009	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R1010	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1011	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R1013, 14	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	2	
R1017	ERX1SJR68	M. RESISTOR 1W 0.68	1	
R1018, 19	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R1022	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R2001	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R2002	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R2003	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R2004	ERJ6GMYG393	M. RESISTOR CH 1/10W 39K	1	
R2501	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R2502, 03	ERDS2TJ330	C. RESISTOR 1/4W 33	2	
R2504	ERDS1TJ1R2	C. RESISTOR 1/2W 1.2	1	
R2505	ERDS2TJ391	C. RESISTOR 1/4W 390	1	
R2506	ERDS1TJ1R5	C. RESISTOR 1/2W 1.5	1	
R2507	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R3001	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R3004	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R3005	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R3007	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3008	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3009	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	1	
R3011	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R3012	ERJ6GMYJ271	M. RESISTOR CH 1/10W 270	1	
R3013	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3017	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R3018	ERJ6GMYG301	M. RESISTOR CH 1/10W 300	1	
R3019	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R3022	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3023	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R3024	ERJ6GMYJ122	M. RESISTOR CH 1/10W 1.2K	1	
R3025	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3026	ERJ6GMYK125	M. RESISTOR CH 1/10W 1.2M	1	
R3027	ERJ6GMYJ224	M. RESISTOR CH 1/10W 220K	1	
R3028	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3029	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R3030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R3032	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3033, 34	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
R3037	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R3039	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R3040	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R4001	ERJ6GMYJ334	M. RESISTOR CH 1/10W 330K	1	
R4002	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4003	ERJ6GMYJ241	M. RESISTOR CH 1/10W 240	1	
R4004	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R4005	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4006	ERJ6GMYJ163	M. RESISTOR CH 1/10W 16K	1	
R4007	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4008	ERJ6GMYJ391	M. RESISTOR CH 1/10W 390	1	
R4009	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R4011	ERJ6GMYK225	M. RESISTOR CH 1/10W 2.2M	1	
R4012	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R4013	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R4014	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R4015	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4016	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4019	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4020	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R4023, 24	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	2	
R4025	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4026	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4031	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4032	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	1	
R4033	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	1	
R4034	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6002	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R6003	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6004	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6006, 07	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	2	
R6008	ERDS2TJ181	C. RESISTOR 1/4W 180	1	
R6012, 13	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
R6014-18	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	5	
R6020	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6021	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6022	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6023-27	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	5	
R6028	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R6029	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R6030	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6031	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R6032	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R6033	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R6034	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6035	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6039	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6041	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6043	ERJ6GMYJ244	M. RESISTOR CH 1/10W 240K	1	
R6044	ERDS2TJ121	C. RESISTOR 1/4W 120	1	
R6045	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R6050, 51	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	2	
R6052	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R6053	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R6055	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R7505	ERJ6GMYJ203	M. RESISTOR CH 1/10W 20K	1	
R7506	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R7507, 08	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R7512, 13	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	2	
R7514	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7515	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R7516, 17	ERJ6GMYJ202	M. RESISTOR CH 1/10W 2K	2	
R7518	ERDS2TJ6R8	C. RESISTOR 1/4W 6.8	1	
R7519-21	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	3	
R7522, 23	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	2	
R7524	ERJ6GMYJ243	M. RESISTOR CH 1/10W 24K	1	
R7525	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7526	ERJ6GMYJ333	M. RESISTOR CH 1/10W 33K	1	
R7527	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R7528, 29	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R7530, 31	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R7601	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R7602	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	1	
R7603	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R7604	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	1	
R7605, 06	ERG2SJ331	M. RESISTOR 2W 330	2	
R7608	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R7611,12	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	2	
R7705	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7708	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
S6001	VES0834	S-TAB SWITCH	1	
S6002	VSS0520	MODE SELECT SWITCH	1	
S7501,02	EVQ11L07B	SWITCH	2	
S7505-08	EVQ11L07B	SWITCH	4	
T4002	VLT0895	TRANSFORMER	1	
⚠ TU7601	ENG57568G	TUNER	1	[SUPPLIED FROM MAV]
X3001	VSX0162	CRYSTAL OSCILLATOR	1	
X3002	VSX0160	CRYSTAL OSCILLATOR	1	
X6001	VSX1022	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
X6002	VSX1021	CRYSTAL OSCILLATOR	1	[SUPPLIED FROM MAV]
		MISCELLANEOUS		
	VXQ0648	FIP HOLDER	1	
■	VEP05367B	HEAD AMP C.B.A.		[SUPPLIED FROM MAV]
				(RTL)
C501	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C503,04	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	2	
C505	VCEA0JCB470	E.CAPASITOR 6.3V 47U	1	
C506	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C509,10	ECUM1C474KBN	C.CAPACITOR CH 16V 0.47U	2	
IC501	AN3365SB	IC	1	
K501,02	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	2	
L501	VLQ0599J680	COIL 68UH	1	
LB503,04	VLP0145	COIL	2	
P501	VJS3537B008G	CONNECTOR (FEMALE) 8P	1	
P502	VJS3069	HEAD AMP CONNECTOR 8P	1	
R504	ERJ6GMYJ681	M.RESISTOR CH 1/10W 680	1	
R505	ERDS2TJ391	C.RESISTOR 1/4W 390	1	
		MISCELLANEOUS		
	VSC4563	SHIELD CASE (TOP)	1	
⚠ ■	VEP01819E	POWER C.B.A.		[SUPPLIED FROM MAV]
				(RTL)
⚠ C1120,21	ECQU2A104MVA	P.CAPACITOR 250V 0.1U	2	
⚠ C1122,23	VCK0286B471	CERAMIC CAPACITOR	2	
⚠ C1124	VCK0286E102	CERAMIC CAPACITOR	1	
C1140	ECEC2GG680	E.CAPACITOR 400V 68U	1	
C1141	ECA1VGE470X	E.CAPACITOR 35V 47U	1	
C1150	ECCZ3A151KGE	C.CAPACITOR 1KV 150P	1	
C1151	VCK0264K102	CERAMIC CAPACITOR	1	
C1152	VCK0295P103	CERAMIC CAPACITOR	1	
C1200	ECQB1H822JF	P.CAPACITOR 50V 8200P	1	
C1201	ECQV1H104B46	P.CAPACITOR 50V 0.1U	1	
C1230	VCK0266K101	CERAMIC CAPACITOR	1	
C1231	ECEA1HGE470	E.CAPACITOR 50V 47U	1	
C1232	VCK0265Z103	CERAMIC CAPACITOR	1	
C1250	VCK0266K221	CERAMIC CAPACITOR	1	
C1251	VCEA1EJH821	E.CAPASITOR 25V 820U	1	
C1252	ECEA1EGE331	E.CAPACITOR 25V 330U	1	
C1263	VCK0266K101	CERAMIC CAPACITOR	1	
C1264	VCEA1AJH122	E.CAPACITOR 10V 1200U	1	
C1265	ECEA1AGE331	E.CAPACITOR 10V 330U	1	
C1270	VCK0266K101	CERAMIC CAPACITOR	1	
C1271	ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C1272	VCK0265Z103	CERAMIC CAPACITOR	1	
C1280	VCK0266K101	CERAMIC CAPACITOR	1	
C1281	EEUFA1A391	E.CAPACITOR 10V 390U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
D1101	S1WBA80	DIODE	1	
D1150	MA723VT	DIODE	1	
D1151	AP01C	DIODE	1	
D1180	MA7300B	DIODE	1	
D1200	MA185	DIODE	1	
D1201,02	1SS254	DIODE	2	
D1230	ERA22-04	DIODE	1	
D1250	RL2Z	DIODE	1	
D1264	21DQ06FC4	DIODE	1	
D1270	ERA22-04	DIODE	1	
D1280	11EQS06	DIODE	1	
⚠ F1180	XBA2C16TB0	FUSE	1	
IC1150	STRF6552	IC	1	
IC1200	TL431CLP	IC	1	
⚠ IP1280	VSF0015A10	FUSE	1	
⚠ L1120	VLF1349N0R5	LINE FILTER	1	
⚠ L1121	VLF1349N0R3	LINE FILTER	1	
L1230	ELESE101KA	COIL 100UH	1	
L1250	ELEKN220KA	INDUCTOR 22UH	1	
L1261	VLQ0655K220	COIL 22UH	1	
L1270	ELESE101KA	COIL 100UH	1	
LB1124-26	VLP0056	COIL	3	
LB1150	VLP0056	COIL	1	
⚠ P1101	VJS3308	AC INLET	1	
P1102	VJP3917A016G	CONNECTOR (MALE) 16P	1	
⚠ Q1200	PC123FY2	PHOTO COUPLER	1	
R1101-06	ERDS2FJ123	C.RESISTOR 1/4W 12K	6	
R1107	ERDS2FJ564	C.RESISTOR 1/4W 560K	1	
R1108	ERDS2FJ474	C.RESISTOR 1/4W 470K	1	
R1120	ERG12AGM334	S.RESISTOR 1/2W 330K	1	
R1150,51	ERG1SJ223	M.RESISTOR 1W 22K	2	
R1152	ERDS2FJ331	C.RESISTOR 1/4W 330	1	
R1153	ERX1SJR39	M.RESISTOR 1W 0.39	1	
R1154	ERG1SJ101	M.RESISTOR 1W 100	1	
R1200	ERDS2FJ220	C.RESISTOR 1/4W 22	1	
R1202	ERDS2FJ222	C.RESISTOR 1/4W 2.2K	1	
R1203	ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R1204	ERDS2TJ123	C.RESISTOR 1/4W 12K	1	
R1205	EROS2CKG2401	M.RESISTOR 1/4W 2.4K	1	
R1206	EROS2CKG2701	M.RESISTOR 1/4W 2.7K	1	
R1207	ERDS2TJ561	C.RESISTOR 1/4W 560	1	
R1208	ERDS2TJ271	C.RESISTOR 1/4W 270	1	
S7511-15	EVQ11L07B	SWITCH	5	
⚠ T1150	VLT0917	SWITCHING TRANSFORMER	1	
		MISCELLANEOUS		
	VMP5133	INLET ANGLE	1	
	VHD0418	SCREW	1	
	TP00351-51	FUSE HOLDER	2	
■	----------	CYLINDER STATOR C.B.A.		
		MISCELLANEOUS		
	HW-300A-CF	HALL IC	1	
	VJS3537B009G	CONNECTOR (FEMALE) 9P	1	

INTERNAL REFERENCE CODE

NOTE: This chart is only for internal reference.
Do not order any parts according to these codes.

P.C.B.	FILM CODE
MAIN SYUGO(MAIN/HEAD AMP)	HOMF00-0557A
POWER	HOMF00-01819
CYLINDER DRIVE	HOMF01-00V01

Panasonic

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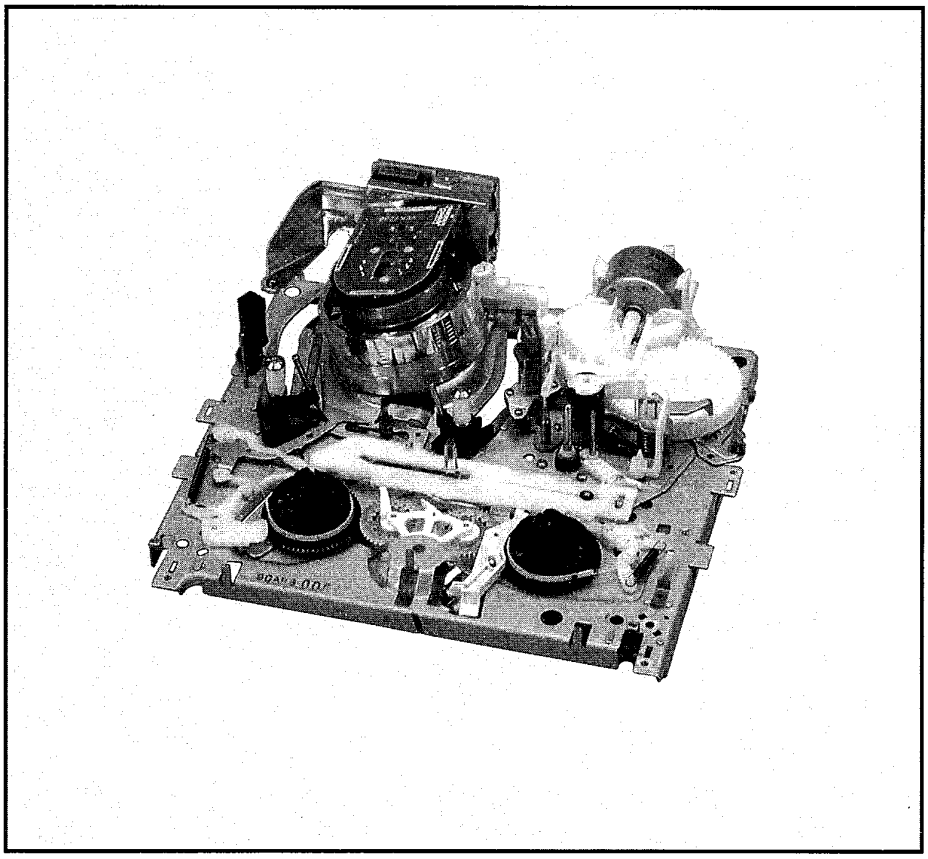
Service Hints

Video Cassette Recorder

Panasonic VHS

Z-MECHANISM CHASSIS



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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

INTRODUCTION

This service hint contains actual repair service result which will allow service personnels to understand and service Z Mechanism, have been got the repair data of Z Mechanism occurred in the market actually.
We expect it will help you to provide the quick and accurate repair service to the customers' VTR mounted Z mechanism.

REMARKS

As mentioned in INTRODUCTION, this service hint have been published by Z Mechanism getting actual repair service data occurred in the market.
Therefore, we expect you will send us the similar repair data for any kinds of models with your cooperation in order to publish the useful technical informations like service hint.

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Z Mechanism phase alignment and checking points ---------- 1
Phenomenon : Cassette tape is not inserted / Tape tangles ---------- 2
Phenomenon : Cassette tape is not inserted / Cassette tape is ejected ---------- 3
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Phenomenon : Tape is not running / Abnormal sound in Playback mode ---------- 5
Phenomenon : Cassette tape is not inserted / Loading is not done ---------- 6
Phenomenon : Tape slack (Self-Test Indication Display F05) ---------- 7
Phenomenon : Cassette tape can not be ejected ---------- 8
Phenomenon : Blue back in Playback mode (No picture or noisy picture) ---------- 9
Phenomenon : A tape is not inserted / Noisy picture in REV mode ---------- 10
Phenomenon : Tape is not running (Capstan does not rotate) ---------- 11/12
Self-Test Indication Display F05 or H02

Z Mechanism phase alignment and checking points

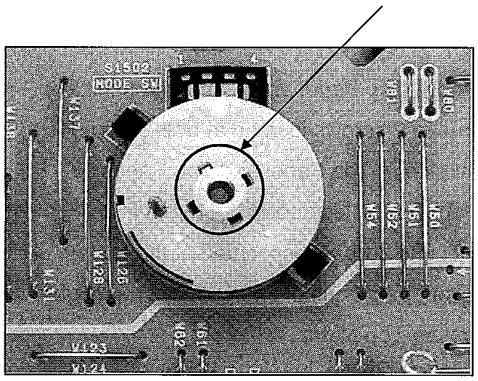
There are 4 phase alignments in Z Mechanism. 3 phase alignments have to be done in Eject position and 1phase alignment has to be done in Cassette down position.
The phase alignments are able to be checked at the following 4 points.

1. Position switch (Mode Switch)
   Rotate Position switch until it reaches to click position.
2. Main cam gear
   Adjust the hole of Main cam gear and the penetration hole of Mechanism chassis.
3. Loading rack
   Adjust the hole that sets the position of Loading rack and the penetration hole of Mechanism chassis.
4. Wiper arm and Drive rack
   Adjust the hole of Drive rack and the gear hole of Wiper arm.

Position switch

Click position of Position switch

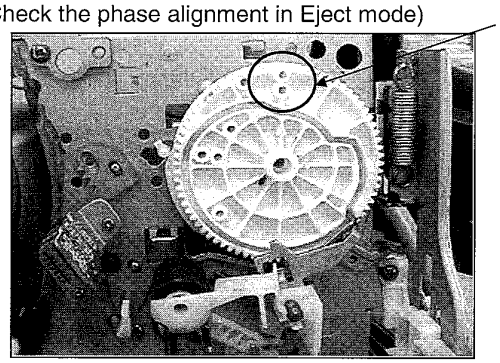
(Check the phase alignment in Eject mode)



Main cam gear

The hole of Main cam gear and the penetration hole of Mechanism chassis

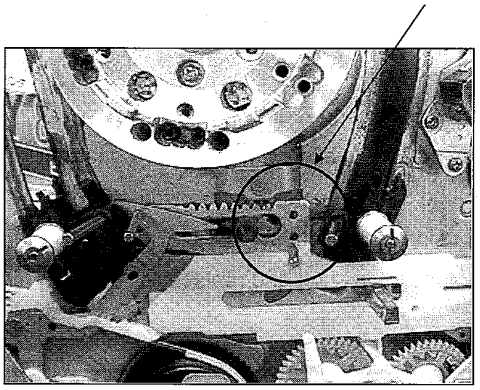
(Check the phase alignment in Eject mode)



Loading rack

The Hole of loading rack and the penetration hole of Mechanism chassis

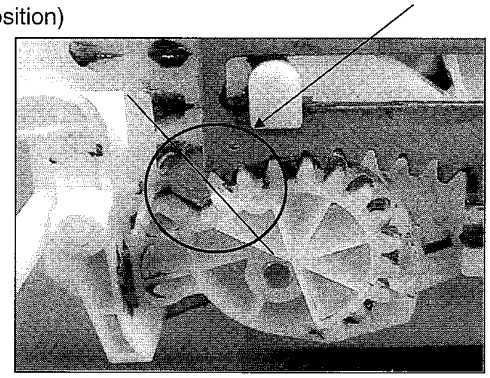
(Check the phase alignment in Eject mode)



Wiper arm and Drive rack

Assign the hole of Drive rack and the hole of Wiper arm on the straight line.

(Check the phase alignment in Cassette down position)



In disassembly and assembly of Z Mechanism, there are 3 phase alignments at gear portion and 4 phase alignments related to arm and lever.

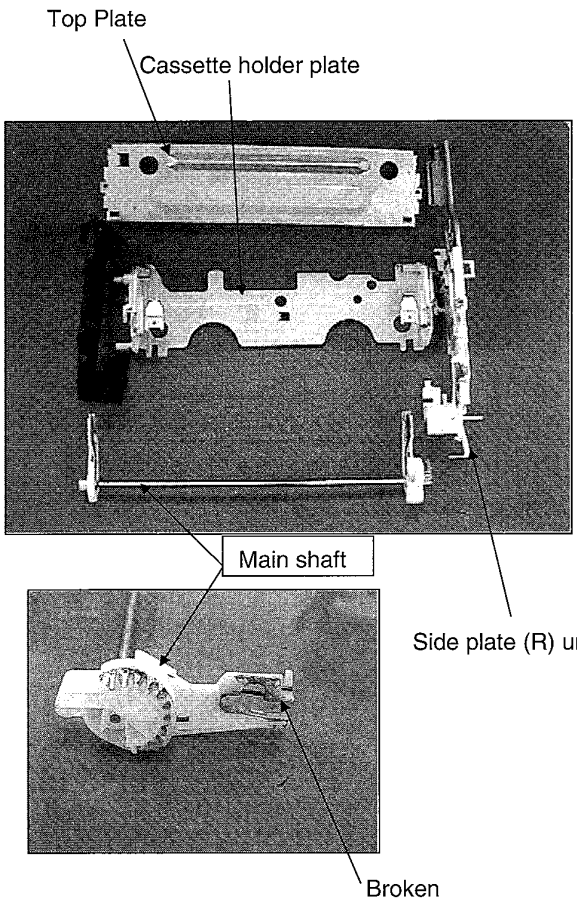
1. Main cam gear
2. Position switch
3. Loading rack
4. Take up / Supply loading arm
5. Drive main arm
6. Conversion lever, P5 arm, Main lever
7. Drive rack arm

Phenomenon : Cassette tape is not inserted / Tape tangles

Diagnosis and Disposal

Checking	Judgement	Disposal
Cassette tape does not move to Cassette down position	Break-down of the plastic portion in Main shaft	Replacement of Main shaft (VXP1730)
Tape tangles	Deformation of Side plate or out of gear phase alig-nment in Wiper arm and Drive rack	Replacement of Side plate (R) unit (VXA5740)

Parts location



Remove of Cassette holder unit

1. Remove Top Panel and Front panel unit.
   Remove 2 screws located at both left and right side of Top Panel and Top Panel.
   Unlock 4 tabs located at the top of Front panel unit and 3 tabs located at the bottom of Front panel unit. Remove Front panel unit.
2. Remove Top plate.
   Unlock 4 tabs located at both left and right side of Top plate softly and remove Top plate.
3. Remove Cassette holder plate.
   Keep pressing 2 stoppers on Cassette holder plate and press Cassette holder plate to the rear of VTR and remove it from left and right side plate unit.
4. Remove Left and Right side plate unit.
   Remove Connection spring of Drive gear and remove 3 red screws and remove Left and right side plate unit.
5. Remove Main shaft and replace it.

Remarks

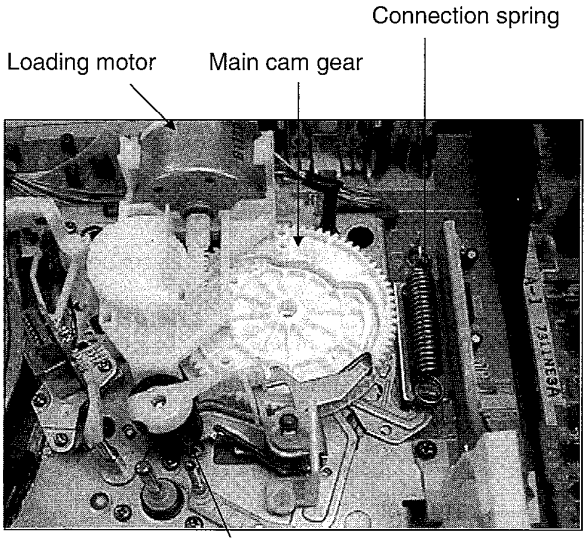
The plastic portion in Main shaft is broken so that Cassette holder unit can not advance.

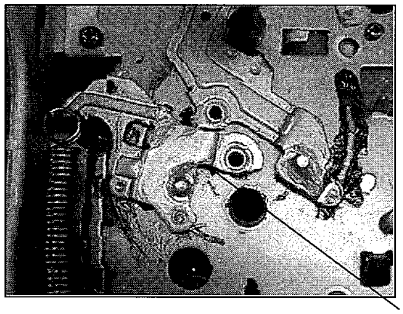
Phenomenon : Cassette tape is not inserted/Cassette tape is ejected

Diagnosis and Disposal

Checking	Judgement	Disposal
Cassette tape floats during loading	Deformation of Drive rack arm located under Main cam gear	Replacement of Drive rack arm (VML3165)

Parts location





On Mechanism unit

1. Remove Mechanism unit.
   -Remove 5 screws that fix Mechanism unit.
   -Disconnect some connectors.
   -Remove Mechanism unit.
2. Remove Pinch arm unit.
   -Unlock the tab of Opener piece and remove Opener piece.
   -Remove Pinch arm unit.
3. Remove Loading motor unit.
   Unlock 3 tabs of Loading motor unit and remove Loading motor unit.
4. Remove Main cam gear.
   Remove Snap washer located at the bottom of Mechanism chassis and remove main cam gear.
5. Remove Drive rack arm.
   Rotate Drive rack arm to the counterclock-wise and remove Drive rack arm.
   Then replace Drive rack arm.

* The mechanism phase alignment has to be done.
  Adjust the hole of Main cam gear and the penetration hole of Mechanism chassis.
  Adjust the hole that sets the position of Loading rack and the penetration hole of mechanism Chassis.

Remarks

Snap washer is very hard so that take care the disassembly of Snap washer during removing Main cam gear.

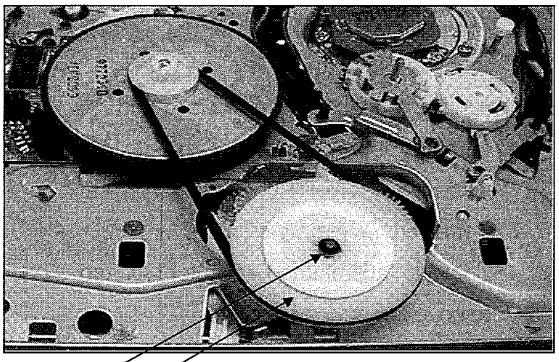
Phenomenon : Cassette tape can not ejected

Abnormal sound in FF/REW mode

Diagnosis and Disposal

Checking	Judgement	Disposal
Mis-function of Mechani-sm or abnormal sound in Mechanism	The rotation of Centre clutch unit is heavy	Replacement of Centre clutch unit (VXP1850 or VXP1732) No. of Centre clutch unit is different depend on the model No.

Parts location

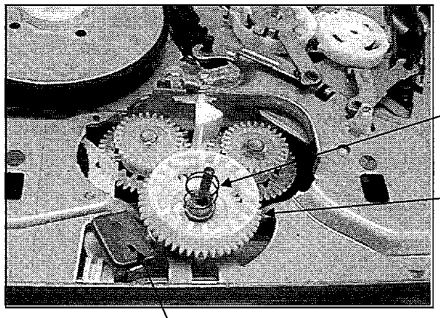


Washer

Centre clutch unit

On Mechanism unit

1. Remove Mechanism unit.
   -Remove 5 screws that fix Mechanism unit.
   -Disconnect some connectors.
   -Remove Mechanism unit.
2. Remove centre clutch located at the bottom of Mechanism chassis.
   -Remove Capstan belt and Washer and remove centre clutch unit while pressing conversion lever B to the bottom.
   After confirming the rotation of Centre clutch unit individually, replace it.



Conversion gear spring

Conversion gear

Conversion lever B

Remarks

Centre clutch unit failure is thought. When rotate Centre clutch unit individually, the rotation of Centre clutch unit is uneven.

Phenomenon : Tape is not running

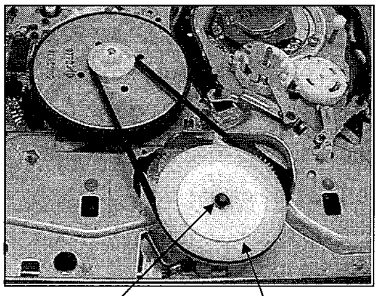
Abnormal sound in playback mode

Diagnosis and Disposal

Checking	Judgement	Disposal
Tape running is abnormal or Abnormal sound in Mechanism unit	Engagement between Idler arm unit and Centre clutch unit is not so good.	Replacement of Idler arm unit (VXL2792)

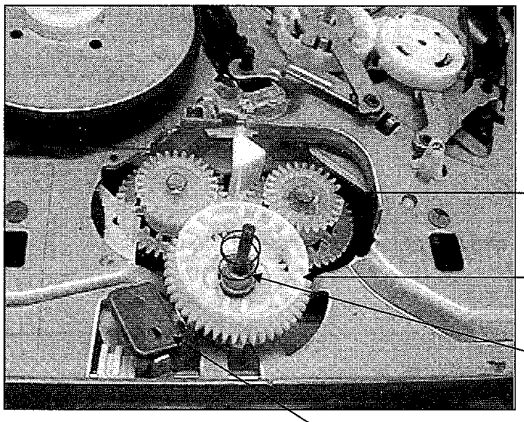
Parts location

Bottom of Mechanism unit



Washer

Centre clutch unit



Conversion lever B

On Mechanism unit

1. Remove Mechanism unit.
   - -Remove 5 screws that fix Mechanism unit.
   - -Disconnect some connectors.
   - -Remove Mechanism unit.
2. Remove Centre clutch unit located at the bottom of Mechanism chassis.
   - -Remove Capstan belt and Washer.
   - -Remove Centre clutch unit while pressing Conversion lever B to the bottom.
3. Remove Idler arm unit.
   Remove Conversion gear and Conversion gear spring and remove Idler arm unit.

Idler arm unit

Conversion gear

Conversion gear spring

Remarks

Engagement of gear of Idler arm unit is bad.

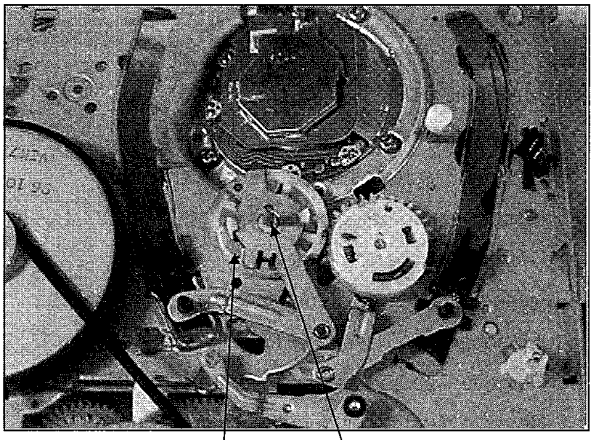
Phenomenon : Cassette tape is not inserted / Loading is not done

Diagnosis and Disposal

Checking	Judgement	Disposal
Loading is not done	-Roller post is not fixed -Take up loading arm is out of position	Replacement of Take up loading arm (VXL2670)

Parts location

On mechanism unit



1. Remove Mechanism unit.
   -Remove 5 screws that fix Mechanism unit.
   -Disconnect some connectors.
   -Remove Mechanism unit.
2. Replacement of Take up loading arm.
   -Unlock the tab of Take up loading arm located at the bottom of Mechanism chassis and remove Take up loading arm.
   -Replace Take up loading arm. When mount Take up loading arm, the arrow mark mentioned on the gear of Take up loading arm has to be adjusted to the gear of Supply loading arm.

* The Mechanism phase alignment has to be done.
  Adjust the hole of Main cam gear and the penetration hole of Mechanism chassis.
  Adjust the hole that sets the position of loading rack and the penetration hole of Mechanism chassis.

Remarks

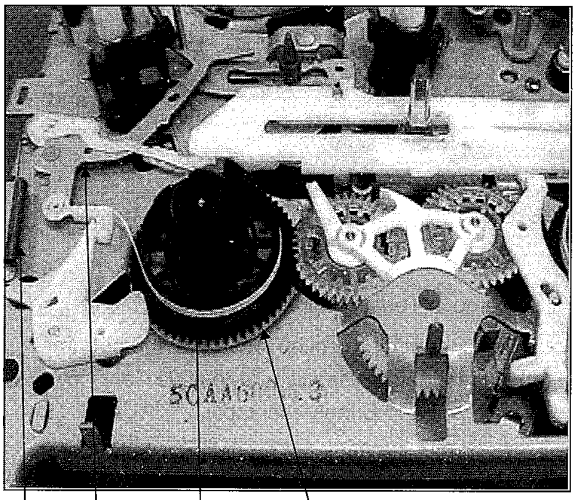
The tab of Take up loading arm loosens and Take up loading arm is not fixed to the pin so that Take up loading arm get out of position.

Phenomenon : Tape slack (Self-Test Indication Display F05)

Diagnosis and Disposal

Checking	Judgement	Disposal
Cassette tape is floating in cassette down position	Cassette tape is not engaged with Supply reel table (Engagement of cassette tape with Supply reel table is bad) (Tape is not wound)	Replacement of Supply reel table (VDR0346)

Parts location



On Mechanism unit

1. Remove Mechanism unit.
   -Remove 5 screws that fix Mechanism unit.
   -Disconnect some connectors.
   -Remove Mechanism unit.
2. Remove Cassette holder unit.
   Remove Connection spring of Drive gear and remove 3 red screws and then remove Cassette holder unit.
3. Remove Tension arm unit and Supply reel table
   Remove Tension spring. Unlock the tab of Tension arm projection located at the bottom of Mechanism chassis and remove Tension arm unit and Supply reel table. Then replace Tension arm unit and Supply reel table.

Remarks

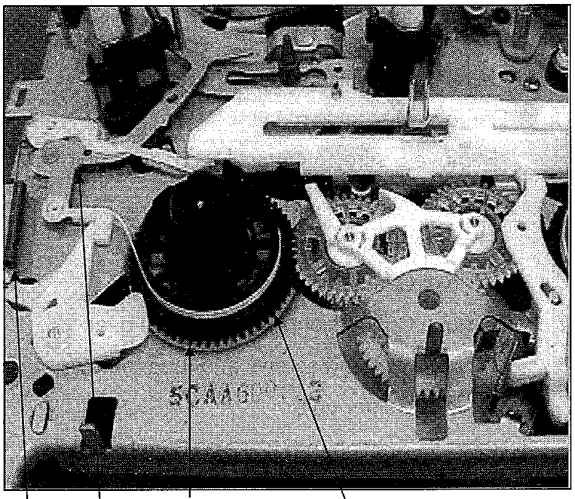
The engagement with gear portion of Supply reel table and cassette tape is bad so that cassette tape is not set to the regular position.

Phenomenon : Cassette tape can not be ejected

Diagnosis and Disposal

Checking	Judgement	Disposal
Unloading is not done	Release of Tension band or deformation of Tension arm	Replacement of tension arm (VXL2793)

Parts location



On Mechanism unit

1. Remove Mechanism unit.
   -Remove 5 screws that fix mechanism unit.
   -Disconnect some connectors.
   -Remove Mechanism unit.
2. Remove Cassette holder unit.
   Remove Connection spring of Drive gear and remove 3 red screws.
   Then remove Cassette holder unit.
3. Remove Tension arm unit and Supply reel table.
   Remove Tension spring. Unlock the tab of Tension arm projection located at the bottom of Mechanism chassis and remove Tension arm unit and Supply reel table.
   Then replace tension arm unit and Supply reel table.

Remarks

Tension band comes off Supply reel table and tape is not wound.

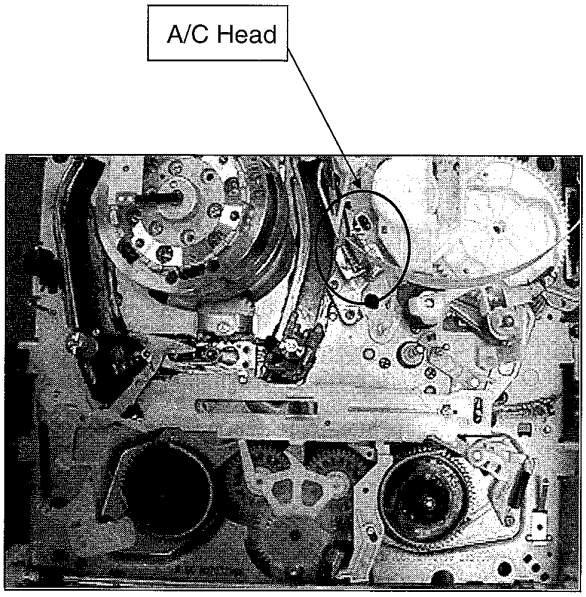
Phenomenon : Blue back in playback mode

(No picture or noisy picture)

Diagnosis and Disposal

Checking	Judgement	Disposal
A/C Head condition	Clog of A/C Head or A/C Head failure	Cleaning of A/C Head or replacement of A/C Head (VED0412)

Parts location



1. Remove Top Panel.
   Remove 2 screws that locate on both left and right side of Top Panel and Top Panel.
2. Clean the surface of A/C Head.
3. Replace A/C Head.
   Remove 1 screw that fix A/C Head and replace A/C Head.

* The tape running adjustment has to be done after replacing A/C Head.

The other phenomenon

- Playback picture is disarranged and playback audio mutes.
- Repeat LP mode and SP mode.
- No function of counter.

Remarks

Since A/C Head is clogged and control signal is not detected, above phenomenon appears.
(Control signal is not detected so that blue back appears.)

Phenomenon : A tape is not inserted

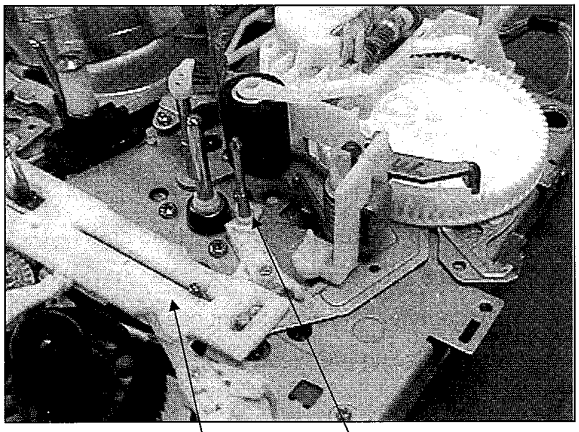
Noisy picture in REV mode

Diagnosis and Disposal

Checking	Judgement	Disposal
Cassette tape does not move to cassette down position	Bend of P5 arm 1. Cassette tape catch in cassette holder unit 2. Tape running is unstable.	Replacement of P5 arm (VXL2677)
Noisy picture in playback mode		

* The phenomenon varies depend on the degree of the bend of P5 arm.
  Example : Noisy picture

Parts location



On Mechanism unit

1. Remove mechanism unit.
   -Remove 5 screws that fix Mechanism unit.
   -Disconnect some connectors.
   -Remove Mechanism unit.
2. Remove Main lever and P5 arm.
   Unlock 2 tabs that fix LED prism and 1 tab that fix the projection on Mechanism chassis while lifting the left side of Main lever a little and remove Main lever and P5 arm. Then replace Main lever and P5 arm.

* The Mechanism phase alignment has to be done.
  Adjust the hole of Main cam gear and the penetration hole of Mechanism chassis.
  Adjust the hole that sets the position of Loading rack and the penetration hole of Mechanism chassis.

Remarks

The plastic portion of P5 arm is broken or P5 arm is bent.

Phenomenon : Tape is not running (Capstan does not rotate)

Self-Test Indication Display F05 or H02

Diagnosis and Disposal

NV-HD670A/EA/BD, HD620A/EA/AM/EU/BD, HD625AM, SD570AM/EU

Checking	Judgement	Disposal
Cap.R/F (Capstan rotation direction control) at pin 7 of IC0201 in Capstan drive circuit (Cap.ED/S at pin 10 of IC6001)	Confirmation of the voltage for Hole element at pin 9 of IC0201 and Motor driving voltage at pin 22, 24 and 25 of IC0201	Replacement of Capstan unit (VEK8239) The inside of IC0201 is broken and IC0201 is being supplied with Capstan unit as one unit

NV-SD320AM, SD420A/EA/SA/EU

NV-SD270A/EA/SA, SD225AM/AMJ/EU, SD220AM/AMJ/A/SA, SD210SA

Checking	Judgement	Disposal
Cap.R/F (Capstan rotation direction control) at pin 7 of IC0201 in Capstan drive circuit (Cap.ED/S at pin 10 of IC6001)	Confirmation of the voltage for Hole element at pin 9 of IC0201 and Motor driving voltage at pin 22, 24 and 25 of IC0201	Replacement of Capstan unit (VEK8024) The inside of IC0201 is broken and IC0201 is being supplied with Capstan unit as one unit

NV-HD620BR/PM, SD420AR/BR/PM

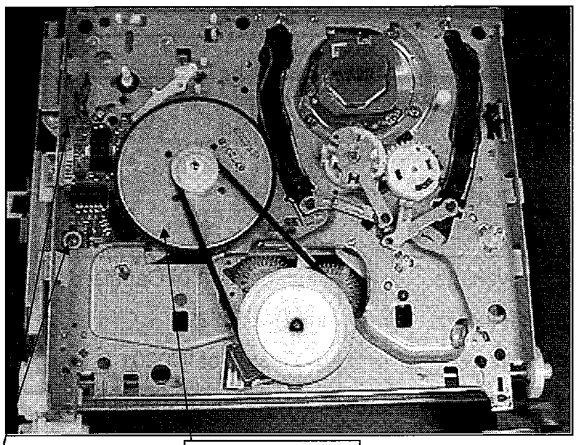
Checking	Judgement	Disposal
Cap.R/F (Capstan rotation direction control) at pin 7 of IC0201 in Capstan drive circuit (Cap.R/F at pin 12 of IC6001)	Confirmation of the voltage for Hole element at pin 9 of IC0201 and Motor driving voltage at pin 22, 24 and 25 of IC0201	Replacement of Capstan unit (VEK8239) The inside of IC0201 is broken and IC0201 is being supplied with Capstan unit as one unit

The other phenomenon

Capstan runs away so that cassette tape can not be ejected or VTR is placed to CUE mode even though VTR is set in SP playback mode.

Parts location

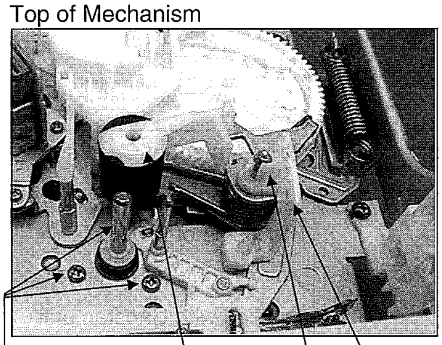
Bottom of Mechanism



1. Remove Top Panel and Front Panel unit.
   -Remove 2 screws located at both left and right side of Top Panel and Top Panel.
   -Remove 7 tabs located at top and bottom of Front Panel unit and Front Panel unit.
2. Remove Mechanism unit.
   -Remove 5 screws that fix Mechanism unit.
   -Disconnect some connectors.
   -Remove Mechanism unit.
3. Replacement of Capstan unit.
   -Unlock the tab of Opener piece and remove Opener piece. Remove Pinch arm unit.
   -Remove 3 screws that mount Capstan unit at the top of Mechanism unit.
   Remove 2 screws that mount Capstan unit at the bottom of Mechanism unit.
   Remove Capstan unit and replace capstan unit.

Concerning more detailed disassembly method, refer to Service Manual for Z Mechanism (Order No. VRD9612M129)

Top of Mechanism



Checking point

The requirement condition to be driven Capstan of IC0201

1. Cap R/F (Capstan rotation direction control) at pin 7 of IC0201 has to be Low voltage.
2. VCC at pin 28 of IC0201 has to be 5V.
3. Motor voltage at pin 19 of IC0201
4. Torque voltage at pin 10 of IC0201
5. Current detection at pin 23 of IC0201
6. Hole element at pin 9 of IC0201

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